

REPORT TO THE CONGRESS

**1998 INTERNATIONAL MAIL
VOLUMES, COSTS AND REVENUES**



POSTAL RATE COMMISSION
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Washington, DC 20268-0001

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NOTICE: This *Report* contains *information that the Postal Service considers to be of a commercial nature, including trade secrets, which under good business practices it would not publicly disclose. The Postal Service provided this information as required by 39 U.S. C. 3663(b), but it requests that this information be kept confidential.*

SUMMARY

This is the initial report to Congress on the costs, revenues, and volumes of international mail handled by the United States Postal Service. This report analyzes fiscal year 1998 information.

The Commission finds that the data provided by the Postal Service on its international mail costs, revenues and volumes are generally reliable and the Commission has included an analysis of the coefficients of variation for the attributable costs per piece of international mail products.

All international mail combined generated revenues equal to 112.9 percent of its attributable costs. In comparison, all domestic and international mail combined generated revenues equal to 158.3 percent of its attributable costs. The financial performance of international products is summarized in a table appearing at page 9 of this report

Financial results are presented separately for outbound international services and inbound international services. The Postal Service has unilateral authority to set the rates for mail sent from the United States to other countries. In total, Outbound International Mail recovers its attributable costs and makes a contribution to the institutional costs of the Postal Service, although at least four individual international services do not earn revenues **sufficient** to cover their attributable costs. See page 35.

The Postal Service does not set the rate of compensation it receives for delivering a substantial portion of the mail sent from other countries to the United States. The Universal Postal Union (UPU) establishes schedules of terminal dues that countries must accept as payment for the delivery of letters and printed matter. In total, Inbound International Mail does not recover its attributable costs, largely because terminal dues do not fully compensate the Postal Service for the delivery of inbound letters and printed matter.

The Postal Service was cooperative in providing data requested by Commission, however it failed to provide sufficient information to enable the Commission to evaluate two small international services, Value **Post/Canada** and Bulk Letter Service to Canada. Rates for these services were recently increased, which may be an indication that the revenues for these service have not been covering costs.

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I. INTRODUCTION

On October 21, 1998, the President signed into law H.R. 4328. H.R. 4328 contained a new § 3663 of title 39, United States Code. Section 3663(a) directs the Postal Rate Commission to submit to Congress a comprehensive report on the costs, volumes, and revenues of the Postal Service's international mail services by July 1 of each year. Section 3663(b) directs the Postal Service to provide to the Commission, by March 15 of each year, the data it needs to prepare its report. This is the first such report prepared by the Commission.

Because the Commission's task is novel, several issues of first impression had to be addressed during the course of preparing its report. The Commission opened Docket No. **IM99-1** to consider these issues. The most significant issues raised in Docket No. **IM99-1** were the precise nature of the data to be provided to the Commission by the Postal Service, the proper definition of individual international postal products for purposes of § 3663 analysis, the proper method for attributing costs to individual international mail products, and whether data provided by the Postal Service should be available for public inspection and comment.

Issues that the Commission needed to address were first raised in a round of pleadings prompted by a petition for rulemaking filed by United Parcel Service (UPS). UPS requested that the Commission commence a rulemaking to determine "(1) the data to be provided to the Commission by the United States Postal Service and (2) the methods to be used by the Commission in analyzing the costs, revenues, and volumes of each international mail product" to prepare the report required by § 3663. Petition of UPS to Institute **Rulemaking** Proceeding to Study International Costs and Revenues, December 16, 1998, at 3. In response, the Commission invited interested parties to submit comments identifying the specific international mail products or services that should be analyzed. The Commission included a preliminary list of possible international mail products and asked interested parties to comment on the

completeness of the list and the appropriateness of the level of disaggregation reflected by the list. Order No. 1226 (January 15, 1999) at 3.

Upon review of comments submitted, the Commission published a revised list of international mail products or “subclasses,” while recognizing that the Postal Service might not be able to produce reliable data on some products in time for the FY 1998 report. The Commission also decided that, to the extent possible, its report should include cost coverages for these international mail products, Order No. 1228 at 2, 5, even if the calculations of those cost coverages could not be revealed because of the commercial sensitivity of the underlying data. Order No. 1228 (February 16, 1999) at 6-7.

The issue of commercial sensitivity, however, was revisited when UPS sought access to essentially all the international mail data filed with the Commission by the Postal Service. UPS made its request in the form of a motion in Docket No. IM99-1. Motion of United Parcel Service to Provide Public Access to International Mail Data Requested in Order No. 1228 and for Opportunity to Provide Public Comment, March 26, 1999. In declining to disclose all of the international mail data provided by the Postal Service, the Commission distinguished the § 3663 reporting procedure from the Commission’s formal rate hearings, where the Commission must balance a litigant’s need for discovery of facts against a need for protection of commercially sensitive information. The Commission also noted that the Postal Reorganization Act reiterates the exemption from the mandatory disclosure policy of the Freedom of Information Act (FOIA) for commercially sensitive information, and that Congress had taken no steps to alter the Service’s eligibility for that exemption when passing § 3663. The Commission concluded that there was no basis for applying a blanket disclosure policy to information provided through the § 3663 reporting process. Order No. 1245 (May 21, 1999) at 3-4.

The March 15 deadline established in § 3663(b) is well ahead of the date by which the Postal Service had traditionally completed its International Cost and Revenue Analysis (ICRA). Nevertheless, the Postal Service was able to supply a large portion of the data requested in Order No. 1228 by March 15, 1999. Between March 15 and June 15, 1999, the Postal Service submitted additional clarifying information in response to six additional Commission data requests.¹ The Commission's data requests were promulgated via Order Nos. 1236, 1240, 1244, 1246, 1251, and 1252. The Commission's data requests generally sought information underlying the Postal Service's estimates of the costs, volumes, and revenues of international "subclasses."

The Commission has been able to evaluate the reasonableness of the Postal Service's methods of collecting international mail data and the reasonableness of its procedures for developing estimates of systemwide totals from those data. They should yield generally reliable results. However, the short time available for reviewing the data on international mail provided by the Postal Service has not allowed the Commission to evaluate that data as thoroughly as it evaluates such data in the context of a domestic rate case conducted under Administrative Procedures Act standards. The Commission has had less opportunity to independently confirm that data were sampled or compiled according to the established procedures. It also has had less opportunity than is available in a domestic rate proceeding to scrutinize the data for anomalous results. Although the Commission concludes that the Postal Service's estimates for international mail are generally reliable, this conclusion is more tentative than it typically would be if data on domestic mail were being evaluated in the context of a domestic rate hearing. As the Commission gains experience with the unique

¹ For convenience, this report uses a nontraditional method for citing references. Appendix A contains a list of numbered references with their complete titles. In this report, citations using the word "Source" followed by a page number or other location reference (e.g., Source 1, p. 3-1) refer to the specific numbered source listed in Appendix A.

characteristics of the data collection systems, rate structures, and markets for international mail, its subsequent § 3663 evaluations will be more definitive.

On June 7, 1999, the Postal Service submitted the FY 1998 ICRA Report — Postal Service Version. It included a new method for estimating attributable international transportation costs, and a new approach to analyzing the difference between imputed settlement costs and the settlement costs in the Books of Account. Because the Commission has not had time to fully consider the merits of the methodological changes in the postal Service version, it is not able to validate them. Nevertheless, the Postal Service's recent methodological changes, if subsequently determined to be valid, would have a noticeable impact on international mail costs and cost coverages. The impact that they would have is shown in Appendix F.

II. GENERAL DESCRIPTION OF INTERNATIONAL MAIL

A. The Basic Categories of International Mail Service

The Postal Service provides three broad categories of international mail service: letter post, parcel post and Express Mail. These categories reflect Postal Service agreements to provide a common set of services on a reciprocal basis with other members of the Universal Postal Union (UPU). With respect to outbound mail, the Postal Service provides mailers in the United States with access to the domestic delivery services offered by the postal administration of the destinating country. With respect to inbound mail, the Postal Service provides access to its domestic delivery services to the postal administration of the originating country.

Generally, the letter post and parcel post categories are divided into “air,” or premium service, and “surface,” or regular service. The UPU distinguishes between mandatory international services, which all members are obligated to provide, and optional international services. The exchange of international letter-post services on reciprocal terms is mandatory among UPU members. These services include letters and cards (**LC**), whose content is most comparable to domestic First-Class Mail, and other articles (**AO**, from the French term “autres objets”). The content of **AO** is comparable to domestic Standard A, Standard B, and Periodicals mail. Printed papers, literature for the blind, and small packets, are mandatory **AO** services. Services that are optional under the UPU structure include international parcel post (the air portion of which is analogous to domestic Priority Mail and the surface portion of which is analogous to domestic parcel post), and international Express Mail Service (**EMS**), which is analogous to domestic Express Mail.

There are subcategories of **LC**, **AO**, and parcel post that provide service enhancements to, or volume discounts from, these basic categories of service. Within

these subcategories are numerous rate groups. They reflect differences in terminal dues (the amount that postal administrations have agreed to charge for domestic delivery of mail originating in another country). They also reflect regional differences in international transportation costs, which are important for bulk mail and parcel services.

B. Characteristics of International Mail Rates

The Postal Service's international mail rates are designed to cover two sets of costs: (1) the cost that it incurs to collect and forward mail to the postal administration of the destinating country and, (2) the amount that the postal administration of the destinating country charges the Postal Service for domestic delivery of that mail. In aggregate, just about half of the costs of the Postal Service's outbound international mail consists of charges for domestic delivery in the destinating country.

Charges for delivering the Postal Service's outbound international mail in the destinating country are of three types. **LC/AO** mail is charged "terminal dues," parcel post is charged "inward land rates," and Express Mail Service is charged "imbalance charges." The terminal dues that are charged for delivering **LC/AO** mail are set by the UPU. These are based on a global average cost, and are the same for all UPU members. This reflects a universal service obligation on the part of UPU members to take all letter post items sent by other UPU members.

Terminal dues rates are set by the Congress of the UPU, which convenes every five years, The Postal Operations council of the UPU, however, can amend them between Congresses. The Postal Service unilaterally determines what it will charge to deliver optional categories of inbound international mail. It sets the inward land rates that it charges to deliver inbound parcel post. It may revise them annually. It also enters bilateral agreements that set the imbalance charges that it applies to inbound Express Mail Service.

Currently three terminal dues rate structures may be applied to the LC/AO mail of UPU members. The first is the basic dues structure, which is a flat rate per kilogram. Where the mail flow between a pair of member countries is above a 150-metric-ton-threshold, a second dues structure known as a “revision mechanism” may be invoked. The revision rate is a combined per-item and a per-kilogram rate that may be invoked for mail flows that are either considerably lighter than average, or considerably heavier than average, in terms of the number of pieces per kilogram. Invoking the revision mechanism has the effect of reducing terminal dues charged to deliver mail that is heavier than average, and of increasing terminal dues to deliver mail that is lighter than average.’ The third structure is a bulk mail option. Of minor importance is the lower terminal dues rate that applies to M-bags. (M-bags contain the AO mail of one mailer all going to a single foreign address.). The Postal Service also enters into multilateral payment agreements to settle its accounts outside the UPU structure. The Postal Service entered into separate agreements with the European Bilaterals (EURB)³ and Canada.

C. Description of Specific International Mail Services

Section 3663(a) of title 39 requires the Commission to prepare “a comprehensive report of the costs, revenues, and volumes accrued by the Postal Service in connection with mail matter conveyed between the United States and other countries.” Section 3663(b) indicates that the Commission’s report should “analyze the costs, revenues, and volumes for each international mail product or service, under the methods

² The revision mechanism is asymmetrical. It can be invoked to reduce terminal dues for flows of heavier-than-average mail from developing countries to industrialized countries, but cannot be invoked to reduce terminal dues for flows of heavier-than-average mail from industrialized countries to developing countries. See Appendix A, Source 14.

³ Belgium, Denmark, Finland, France, Germany, Great Britain, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, and Sweden. See Appendix A, Source 13.

determined appropriate by the Commission for the analysis of rates for domestic mail.” Section 3663(b) does not specify which of the over 70 international products and services that the Postal Service offers should have its “costs, revenues, and volumes” separately analyzed in this report. The Commission, therefore, must decide at what level of detail a presentation of costs, revenues, and volumes would most meaningfully aid Congress’ understanding of the financial posture of the Postal Service’s international mail services.

The Commission infers from § 3663 that Congress contemplates a report that provides data and analysis from which the Congress can draw conclusions about the adequacy of the rates charged for international services, whether viewed from the standpoint of the Postal Service’s domestic users, or from the standpoint of the competitors of the Postal Service’s international services. From either viewpoint, it would appear that an important consideration is identifying which categories the Postal Service itself focuses on when it relates international mail rates to costs. Consequently, this report attempts to display the financial posture of the international services for which the Postal Service consciously designs a specific margin of revenue over costs (or “cost coverage”) when it chooses rates for its international services. In subsequent reports, the Commission will have an opportunity to consider whether additional criteria might be appropriate for determining the list of international services to be included in reports submitted under § 3663. The Commission’s first report under § 3663, however, presents cost, revenue, and volume data for a list of international services for which the Postal Service itself designs specific cost coverages. See Table II-1, below.

TABLE II-1
SUMMARY OF VOLUME, REVENUE, AND ATTRIBUTABLE COST
FOR SECTION 3663 INTERNATIONAL MAIL SERVICES

International Mail Category	Volume (1)	Revenue (\$) (2)	Attributable Cost (\$) (3)	Contribution (\$) (4)=(2)-(3)	Cost Coverage (5)=(2)/(3)
OUTBOUND MAIL					
surface					
Printed Matter & Small Packets. excl ISAL & Per	28,215	57,461			
Periodicals	65,082	68,615			
Parcel Post	2,312	57,607			
Int'l Surface Airlift	163,587	116,120			
ValuePost/Canada 1/		0			
Subtotal, Surface	259,196	299,803	310,880	(11,077)	96.4%
Air					
Letters and Letter Packages	510,053	451,943			
Postcards, Postal Cards, and Aerogrammes	63,010	31,299			
Printed Matter and Small Packets (AO)	45,017	194,833			
International Priority Airmail Service	52,843	39,219			
Bulk Letter Service to Canada 1/		0			
Parcel Post	4,240	124,029			
Express Mail International Service	4,694	125,363			
Subtotal, Air	679,857	966,686	633,264	333,402	152.6%
Initiatives					
Global Priority Mail					
Global Package Link					
Direct Entry/Inbound					
International Customized Mail					
Subtotal, Initiatives	33,002	66,307	76,356	(10,049)	86.8%
Total Outbound	972,055	1,332,796	1,020,520	312,276	130.6%
INBOUND MAIL					
Surface LC/AO	46,735	36,637			
Surface Parcel Post	2,142	16,752			
Surface Subtotal	48,877	53,389	62,561	(9,172)	85.3%
Air LC/AO	587,926	163,179			
Express International Mail Service	3,763	30,137			
Air Parcel Post	2,192	20,029			
Air Subtotal	593,881	213,345	222,081	(8,736)	96.1%
Direct Entry/Inbound	301	116			
Global Parcel Services	1,049	2,552			
Other 1/	-	12,909			
Total Inbound	644,108	262,311	287,379	(5,068)	98.2%
International Service Incremental Cost		0	122,445	(122,445)	0.0%
Total International Mail	1,616,163	1,615,107	1,430,344	164,763	112.9%
Source Table IV-2			1/ See Table IV-2 for caveat.		

A second concern causing the Commission to modify the list of international **services covered** by its report is that some international services are so small, and the sample data are so thin, that separating their cost, revenue, or volume data from the larger subclass to which they belong yields results that may not be sufficiently accurate to **support** meaningful conclusions. Accordingly, some **services** (specifically M-Bags) are combined with their parent subclass (AO) for purposes of calculating their cost coverages.

Table II-1, therefore, displays costs, revenues, and volumes for all of the outbound international services for which the Postal Service separately selects a target cost coverage, except for **Valuepost/Canada**, Bulk Letters to Canada, and M-bags. It is apparent that Table II-1 disaggregates outbound services to a greater extent than inbound services. This reflects the fact that the Postal Service determines what it charges for outbound services+ but has only limited influence over the charges promulgated by the UPU for inbound **LC/AO** services. The Postal Service sets rates, and has distinct revenue targets, for more outbound services than there are distinct inbound services.

The outbound and inbound flows of the broad, UPU-defined subclasses of international mail are related in the sense that country pairs exchange mail service that is similar in content and service features. In the case of **LC/AO** mail, the same terminal dues rates are applied to both directions of the exchange. All things being equal, an increase in terminal dues will increase the markup on inbound mail and decrease the markup on outbound mail. It can be argued, therefore, that the outbound and inbound costs, revenues, and volumes of like services should be combined to determine the financial posture of a given service. Counter-arguments are that many outbound mail services do not have direct inbound analogues, and that outbound flows are not the primary cause of inbound mail flows. Furthermore, the costs and service features of outbound mail are largely within the control of the originating postal administration,

while the charges and service features that apply to inbound mail are largely determined by the UPU. It can be argued that because of this bifurcation of responsibility, the financial posture of a given outbound international service should be analyzed separately from its corresponding inbound service.⁴ The Commission has concluded that both points of view can be accommodated by presenting the costs, revenues, and volumes of outbound and inbound mail flows separately for the services included in Table II-1. The separated data can be readily combined by those who view particular outbound and inbound services as sufficiently related to warrant combined analysis.

The Postal Service characterizes some of its newer products that are designed to compete directly with privately provided international mail services as its international mail "initiatives." These are displayed together in Table II-1 at lines 15 through 19. A description of the international services listed in Table II-1 is presented in Appendix B.

⁴ The Postal Service itself has changed its position on this issue. Prior to 1986, the Postal Service pooled outbound and inbound costs in selecting target cost coverages for its international services. This had the effect of burdening outbound ratepayers with the cost of delivering inbound, foreign-origin mail. After it suspended application of the Private Express Statutes to its international services in 1986, the Postal Service designed rates for its outbound international services to cover the costs only of the outbound portion of each service.

III. MEASURING THE COSTS, REVENUES, AND VOLUMES OF INTERNATIONAL MAIL

A. Description of Data Sources and Data Development Methodology

The Postal Service uses many of the same data sources for international mail that it uses for domestic mail. For volumes, this includes the Permit system. For costs, this includes the In-Office Cost System (IOCS), the Transportation Cost System (TRACS), and the City Carrier and Rural Carrier data collection system. Where necessary, the Postal Service augments its data needs with additional data systems like the System for International Revenue and Volume — Outbound (SIRV/O) or the System for International Revenue and Volume — Inbound (SIRV/I). The Service also has to account for its new offerings referred to as initiatives. Because some of the existing data collection systems do not generate sufficient information on the initiatives, the Service uses alternative data sources to obtain estimates. This section briefly describes the data sources and the methodology the Postal Service uses to calculate the revenue, pieces, weight, and attributable cost for international mail. A more detailed description is contained in Appendix C. It should be noted that the Postal Service has provided attributable costs using the Commission's costing methodology, *i.e.*, the same costing methodology that underlies the recommended rates in the Commission's most recent decision in an omnibus domestic rate case.

(1) Outbound Revenue, Pieces, and Weight

In FY 1998, the Service obtained its volume and revenue data from the Permit system or permit-like systems. These systems identified 33 percent of outbound piece volume. See Appendix C at 3. The remaining 67 percent were obtained from the SIRV/O. The Permit system tracks the data from mailing statements on a census basis,

as do the permit-like systems. These census systems cover (1) Periodicals, (2) International Surface Airlift (ISAL), (3) International Priority Airmail Service (IPAS), (4) ValuePost/Canada, (5) Bulk Letter Service to Canada, (6) Global Package Link (GPL) (except for a small portion), (7) Direct Entry, (8) Express Mail International Service (EMS), (9) Global Priority Mail (GPM), and (10) International Customized Mail (ICM).

The SIRV/O is a stratified random sampling system that collects revenue and volume data for (1) Surface Printed Matter, (2) Surface Parcel Post, (3) Air Letters and Letter Packages, (4) Air Cards and Aerogrammes, (5) Air Printed Matter, and (6) Air Parcel Post. The SIRV/O is supported by the Military and International Accounting and Dispatch System (MIDAS). This operational system provides a census count of the weight of outbound mail by destination country. It provides a control weight figure for adjusting sample estimates to coincide with a direct measure of the actual weight of international mail.

The Service also uses an auxiliary sample data collection system independent of the SIRV/O to provide an estimate of GPM volume by country. The accounting systems do not track GPM volume by destination country. The sampling process is similar to the SIRV/O.

(2) Inbound Revenue, Pieces, and Weight

The Postal Service's International Accounts Branch (IAB) routinely collects volume information on inbound international mail from the manifests that accompany the mail. Source 1, p. 6-1 and Source 8, Response to Item 2. Through this process, it collects piece and weight data for parcel post, EMS, and M-bags. For LC/AO mail it collects only weight information. To develop the number of pieces for this mail, the Postal Service estimates the average number of pieces per kilogram by transportation mode and country or country groups. This estimate is obtained from the SIRV/I, which

is a stratified random sampling system similar to **SIRV/O**. The Service multiplies the total weight of inbound **LC/AO** mail for each country by the applicable piece per kilogram. Source 1, p. 8-2 and 8-5.

To develop inbound revenue for mail, the Service multiplies the volumes, described above, by the applicable terminal dues rate, inward land charge, or imbalance charge, adjusted for the appropriate exchange rate. The Service knows these charges from agreements with other countries and published schedules. Source 1, p. 6-1. The Postal Service maintains a separate system for accumulating revenue and volume information on inbound mail from Canada. The Service uses the same calculation procedure for Canadian mail as described above. Source 1, pp. 6-1 and 6-3.

Since the described procedure provides imputed values for revenue, the Postal Service adjusts the figures to match the revenues included in the Domestic RPW Report. Air conveyance dues and transit fees are obtained from the books of accounts. Source 1, p. 6-3.

(3) The Development of Attributable Costs for the Standard Services

There are six generalized components for international mail costs: (1) mail processing; (2) delivery (in-office and street), (3) domestic transportation; (4) international transportation; (5) settlement charges; and, (6) "all other" costs (primarily costs that piggyback on the directly variable costs). This categorization accounts for all cost elements in the Domestic Cost Segments and Components Report and the Domestic Cost and Revenue Analysis (CRA), which has a line item for international mail.

Outbound services incur domestic mail processing, domestic transportation, international transportation, terminal dues (the cost of delivery in the destination foreign country), and applicable "all other costs." Outbound costs do not require domestic

delivery. Inbound mail incurs domestic mail processing, domestic transportation, delivery, and applicable all other costs. Inbound mail does not incur settlement charges or international transportation costs.

The costs for mail processing are based on a combination of the Management Operating Data System (MODS) activity cost and In-Office Cost System distribution keys. Delivery costs are based on IOCS information and the data in the city and rural carrier cost system. This report is based on an ICRA that uses the Commission's methodology.

Domestic transportation costs are obtained from the book of accounts and distributed to international services on the basis of distribution keys derived from TRACS. For some expense categories, the TRACS data are not sufficiently detailed. In these cases, the Postal Service uses the outbound and inbound volumes described above as a distribution key. Source 1, p. 2-1.

International transportation cost is attributed only to outbound mail. The applicable cost for each service is obtained in four steps: (1) from International Accounts Branch (IAB) data, unit cost by country and mail category is calculated, (2) unit costs are multiplied by more detailed mail category information to develop country totals, (3) country totals are grouped into applicable rate groupings, and (4) the country group totals are reconciled to the book of accounts. Source 1, p. 4-1. Costs for Canada and Mexico mail are estimated using analogous domestic unit costs. Source 1, p. 4-4.

Settlement costs apply only to outbound mail. They reflect payment to foreign postal administrations for delivering or forwarding U.S. mail. Source 1, pp. 5-1 and 5-2. The Postal Service calculates an imputed value for these costs by multiplying the outbound volumes by the applicable settlement charge. The Postal Service does not reconcile the total imputed value to the book of accounts' value because the latter figure is accrued on a conservative basis to avoid underestimating expenses and

reflects other factors that are not a function of current volumes. In FY 1998, the Book of Accounts value was \$70 million higher than the imputed value. The Postal Service treats this difference as an incremental cost of providing international mail service as whole. Source 7, Response to Item 10.⁵

“All other” costs encompass all attributable costs not included above. These are mostly cost items that are treated as varying in proportion to directly variable cost. These costs include the costs of some lower level regional and headquarters administration, rents, fuels, utilities, supplies and services, and other support costs. There are also directly variable costs for supervision and for clerk and mailhandler nonmail processing activities.

(4) The Development of Attributable Costs for the Initiatives

Cost data for the initiatives are gathered from sources outside the main data collection systems because the initiatives are seldom observed in these systems with the exception of GPM, which is obtained from the IOCS. GPL costs are based on an engineering approach by which the operations are mapped out and classified as variable or fixed. Unit costs are estimated for each of the operations deemed variable and multiplied by volume to calculate total attributable cost. Source 3, Response to Item 9. The Postal Service also identified product-specific costs for GPL. These costs reflect advertising, promotional, and other costs related solely to GPL. GPM also had product-specific costs for the same activities. Source 7, Response to Item 9.

⁵ On June 7, 1999, the Postal Service submitted the FY 1998 ICRA report- Postal Service Version. The report contained a revised methodology for calculating international transportation cost and a different treatment of the difference between imputed settlement costs and the settlement costs in the Books of Account. Because of time constraints, the Commission has not been able to evaluate the merits of the changes. For this reason, the attributable costs in this report reflect the FY 1998 ICRA Report -- PRC Version.

The costing for Global Direct Services (Direct Entry/Inbound) and ICM reflects the costs of operations that vary by specific customer. Source 1, pp. Q-3 and 9-4.

The Postal Service estimates the costs for Global Parcel Services (GPS), an inbound service, using a proxy unit cost estimated for domestic Priority Mail. Transportation costs are adjusted to reflect weight differences between Priority Mail and GPS. Source 1, p. 9-5.

(5) International Mail Incremental Costs

The Postal Service has included costs that it views as incremental to International Mail as whole. The cost has two components. As discussed above, the first component reflects the difference in settlement charges between imputed costs used in the ICRA as attributable settlement cost, and the booked cost in the system of accounts. This cost amounted to \$70 million in FY 1998. The second component reflects expenses for the International Business Unit that amounted to \$52 million in FY 1998. ICRA Report, p. A-1, footnote 1. The reported amount includes the salaries and benefits for IBU personnel, supplies and services, rents, utilities, and other related expenses. Source 3, Response to Item 4. Together, these expenses amount to \$122 million.

These costs cannot be causally related to specific international services on the basis of current information, but can be causally related to international services as a whole. Accordingly, the cost coverages for specific products shown on Table II-1 do not reflect these incremental costs.

B. Evaluation of Data Sources and Data Development Methodology

This section discusses the reliability of the volume, cost, and revenue data. The organization of this section generally follows the preceding section. There is an

additional section **that** discusses data quality with respect to unit costs and cost coverage.

(1) Outbound Revenue, Pieces, and Weight

The volume and revenue data that the Postal Service uses for outbound international mail are quite reliable. Thirty-three percent of the volume data are collected using census data systems, and the other 67 percent is estimated using the **SIRV/O** system that has control numbers from the **MIDAS** system. The coefficients of variation (CV) for these data are very small.

Most of the census data (94 percent) comes from the Permit system. The Permit system has been accepted in omnibus domestic rate cases as reliable. It provides volumes and revenues for Domestic Standard A mail, which amounted to 83 billion pieces of mail in 1998. The system is based on mailing statements that contain the detail of a mailing related to pieces, weight, and revenue. The statements are checked by an acceptance clerk and entered into an automated accounting system. It is therefore well suited to the task of accurately accumulating volumes and revenues for any service. The data sources for the other 6 percent collect the same type of information without it being entered into an automated accounting system. These reports are similarly well suited to accurately generating volumes and revenues.

The **SIRV/O** is a well-designed system for randomly sampling containers of outbound mail. The cornerstone, however, is the **MIDAS** system, which provides a census count of the gross weight of all outbound mail by country, transportation mode, and UPU class. The Postal Service uses the **MIDAS** numbers as control totals in the expansion process. This adds to the reliability of the **SIRV/O** estimates.

The Commission's confidence in the reliability of the outbound RPW estimates is further bolstered for most of the major categories of outbound mail by their small **coefficients** of variation as shown by the **CVs** below.

TABLE III-1

COEFFICIENTS OF VARIATION FOR **SIRV/O ESTIMATES**
FOR SELECTED CATEGORIES

Mail Category	Coefficients of Variation		
	Revenue	Pieces	Weight
Air LC	1.3%	2.0%	1.0%
Air AO	1.7%	2.6%	2.0%
Air Parcel	1.7%	3.2%	2.9%
Surface AO	5.0%	6.7%	5.0%
Surface Parcel	2.9%	2.6%	3.4%

Source: Source 7, Response to Item 17

(2) Inbound Revenue, Pieces, and Weight

The Commission believes the Inbound RPW estimates are generally reliable because the **SIRV/I** sampling system underlying the estimates is well designed. The estimates may suffer from unquantifiable nonsampling error. Nonsample error, however, is not likely to be substantial for the reasons discussed below.

Like the **SIRV/O**, the **SIRV/I** estimate of pieces per kilogram relies on a set of control numbers that allows the Postal Service to calibrate sampled volumes to census-based volumes kept in the IAB. The control numbers are total kilograms by country and transportation mode. The IAB maintains a count of the weight of mail entering the U.S. based on the manifests that accompany the mail. Operations personnel check the contents of inbound containers against the manifests. When there is a discrepancy, these personnel prepare and dispatch to the origin country documentation known as a Bulletin of Verification. Data files are updated accordingly. Source 8, Response to Item 2. Thus, the Postal Service continuously takes steps to insure the accuracy of

inbound volume data. Since the control numbers appear to be accurate, the conversion of pieces per kilogram to total pieces should be reasonably accurate.

The Postal Service identifies two nonsampling error problems that have emerged. First, some inbound Canadian mail arrives in Postal Service containers and is not sampled because it is mistaken for U.S. Domestic mail. Second, the Postal Service has some indication that not all sampled mail containers from Canada and Europe are selected randomly. The Postal Service explains that the magnitude of the potential sampling problem is unknown as is the impact on revenue. The Postal Service adds, however, that it has taken three steps to address the potential problem. Source 8, Response to Item 1.

First, in the summer of FY 1998, the Postal Service began to clarify and improve field data collection and administrative procedures. Second, the Postal Service held a conference in November 1998 on international statistical programs bringing together data collectors, data collector supervisors, and headquarters personnel to discuss the issues. The Conference included workshops for each major program area, including SIRV/I. Third, the Postal Service is preparing and will soon release Handbook F-85, Data Collection Users Guide for International Systems. It contains updates of **out-of-date** field procedures and **consolidates** data collection policy and procedures for all international statistical programs. Source 8, Response to Item 2.

These corrective measures will only affect RPW data collected after FY 1998. The impact of these potential problems on the FY 1998 RPW data is unknown.

(3) The Attributable Costs for the Standard Services

These costs are generally reliable. On average, settlement costs and international transportation costs account for **71** percent of **the** total attributable cost for outbound services. The Commission has reviewed the underlying workpapers and found no material errors. The calculation of settlement costs is based on outbound

volume estimates which the Commission has concluded are reliable, as discussed above, and known and certain schedules for the various forms of settlement charges. International transportation costs are based on the generally reliable outbound volumes and unit cost figures developed from the IAB report which collects the actual outbound weight and cost by country. Moreover, these costs are ultimately adjusted to match the Book of Accounts. Thus, these costs should be reliable.

The other 29 percent of outbound costs and all inbound costs are based on the costing methods that underlie the domestic CRA. In domestic rate cases, the Commission has concluded that the data systems that underlie these costs are reliable. For this reason, the Commission believes these costs should be reliable here.

The Commission also used the Service's input data in its own cost model. The Commission's cost for international mail matched the Postal Service's segment by segment. For this reason, the Commission believes the attributable costs for the standard services as calculated by the Service accurately portray the Commission's methodology.

(4) The Attributable Costs for the Initiatives

The Commission has not been able to verify the accuracy of the input data for the initiative cost models. It was able to review the model methodology underlying the models. The Postal Service here employs models generally similar to ones it has introduced in domestic omnibus rate cases and classification cases to support new classifications, discounts, or special services. These models are referred to as engineering models or special studies. In the domestic area, the Commission has relied on broadly similar models to support recommended rates and classifications.

Under this modeling approach, the Postal Service identifies all the operations that accompany a particular service. It then obtains unit cost estimates for each of the operations. Typically, the Postal Service obtains the unit costs from a special study

conducted to estimate the cost of a specific operation or group of operations or it uses a unit cost from the CRA for an analogous service and operation. After it **has** put together the applicable unit costs, the Postal Service obtains volume estimates to apply to them. If the service is already operational, actual volume estimates may be available, as they are for each of the initiative cost models.

All the models incorporate the approach described above. They appear to account for relevant operations and the unit costs estimates appear to be reasonable. For these reasons, the Commission uses these costs.

(5) Analysis of Unit Attributable Costs

The Postal Service computes estimates of Attributable Cost per Piece (ACP) for many categories of inbound and outbound International Mail for its annual "International Cost and Revenue Analysis" (ICRA) reports. These estimates of ACP are the result of complex calculations performed on uncertain values for parameters and variables derived from a number of Postal Service data systems and special studies. In this respect the international ACPs differ little from their domestic counterparts in the Service's annual CRA Report.

Like the estimates of ACPs for domestic subclasses, the ACPs for International Mail categories are subject to two kinds of errors. These are known as sampling and non-sampling errors. Sampling errors arise because, as a practical matter, it is usually possible to observe only a small fraction of the mail as it is collected, processed, transported and delivered by the Postal Service. Non-sampling errors arise if the sampling processes produce errors with an expected value that is unequal to zero; that is, if repeated applications of the sampling processes do not leave errors with an average of zero. Therefore, non-sampling errors cause unwanted biases in the value of the parameters or variables being sampled.

Eliminating non-sampling errors is one of the objectives of good sampling design and statistical methodology. Some sampling error, on the other hand, is inevitable. It can be reduced by taking larger samples but can only be eliminated by sampling all of the mail. Consequently, a prudent user of the Postal Service's estimates of ACP would want to have a measure of the likely size of the sampling errors that these estimates inevitably contain.

The coefficient of variation (CV) for the attributable cost per piece (ACP) of a subclass or category of mail is a general-purpose measure of the accuracy of the estimated ACP. The CV is defined as the ratio of the standard deviation of the estimation error divided by the estimate of ACP. It is usually expressed as a percent. As a rule of thumb, ~~plus-and-minus~~ two times the CV gives the interval around the estimate of ACP within which the unknown true value of ACP will fall with 95 percent confidence. For example, a CV of 4 percent for an estimated ACP of \$1 .00 means that one can be 95 percent certain that the true value of ACP will lie within the range between \$0.92 and \$1.08.

Table III-2 displays approximate values of the CVs for the ACPs of the major categories of inbound and outbound International Mail. The calculations have been made using an approximation formula derived in Appendix D and from estimates of ACPs and CVs for the components of the formula provided to the Commission by the Postal Service.

The column labeled "ICRA Cost per Piece" is the ACP for the corresponding category of mail as it appears in the Service's 1998 ICRA report where it is referred to as "unit volume-variable cost". "Revenue per Piece" is also as shown in the 1998 ICRA. "Percentage Cost Coverage" is the ratio of revenue to attributable cost expressed as a percent. The overall CVs for the fifteen major categories of inbound and outbound International mail are shown in the column labeled "CV of Cost per Piece". These overall CVs are derived directly from CVs for the various cost components and volume

as shown in Appendix D. Finally, the column labeled “Coverage t-value” on the far right holds t-values for statistical tests of hypotheses that the coverage is greater or less than 100 percent.

The t-values are defined as the Percent Cost Coverage minus 100 divided by the CV of Cost per Piece. The t-value is positive if the coverage is greater than 100 percent, as is the case for most categories of International Mail. A positive t-value is used to determine if there is any significant probability that actual coverage is less than 100 percent. Mail categories with cost coverages of less than 100 percent have negative t-values. For these categories the t-value is used to determine if there is any significant probability that the actual coverage is above 100 percent.

**TABLE III-2 COST PER PIECE, REVENUE PER PIECE
AND COEFFICIENTS OF VARIATION FOR INTERNATIONAL MAIL**

Summary					
International Mail Category	ICRA Cost per Piece (\$)	Revenue per Piece (\$)	Pct. cost Coverage	cv of Cost per Piece	Coverage t-value
Outbound:					
Letters and letter packages		0.886		3.00%	
Postcards, postal cards		0.497		6.00%	
International Priority Airmail		0.742		1.80%	
Air AO		4.328		4.50%	
Air Parcel Post		29.252		5.07%	
Express Mail International Service		26.709		3.20%	
Surface AO		2.037		8.63%	
Surface Publishers Periodicals		1.054		2.60%	
International Surface Airlift		0.71		0.37%	
Surface Parcel Post		24.917		9.42%	
Inbound:					
Surface LC/AO		0.784		9.76%	
Surface Parcel Post		7.821		21.35%	
Air LC/AO		0.278		7.70%	
Express Mail International Service		8.008		53.54%	
Air Parcel Post		8.137		17.49%	

The calculated CVs are approximate values for several reasons. First, ACP is a non-linear function of various estimates of volume-variabilities, distribution key shares and mail volumes produced by the Postal Service's data systems and special studies. For this and other reasons, the formula used to compute the overall CV for each category of mail from the CVs of its components can provide only a close approximation. Second, some of the CVs of the sampling statistics used in the formula are missing from the Service's responses to the Commission's information requests. In particular, there are no CVs for any cost pool volume-variabilities. These variabilities are all assumed to be equal to one and their CVs are assumed to be zero. It is

frequently the case that the **CVs** for distribution key shares and mail volumes are reported for aggregations of more than one category of mail, or in other ways that do not exactly match the **ICRA** report. For example, the cost pool definitions used to report **ACP** in the **ICRA** do not exactly match the cost categories for which the Service has reported **CVs** for the **IOCS** distribution keys. These and other defects in the data have been overcome by using proxies and by making other assumptions as needed to use whatever data has been supplied. Inevitably, the results of applying the formula, which follows the category definitions used in the **ICRA**, are approximations. The specific assumptions made to apply the approximation formula and the details of the calculations are described in Appendix D. The actual calculations were performed within a Lotus 1-2-3 worksheet.

The calculations of the overall **CVs** for Cost per Piece have been made under the assumption that all of the necessary estimates of volume-variabilities, distribution key shares and mail volumes are free of any biases that might be caused by non-sampling errors. The use of this assumption to calculate **CVs** does not mean that the Commission believes that Postal Service estimates are completely free of non-sampling errors. It means only that, if non-sampling errors are present, their effects are unknown. In Appendix D it is shown that correcting for an additive bias in most of the estimates would not strongly affect the **CVs**.

Table III-2 shows that for most categories of International Mail the Postal Service has collected cost and volume data with sufficient accuracy to allow statistically significant conclusions to be drawn regarding the coverage of **ACP** by revenues per piece as shown in the 1998 **ICRA**. The exceptions to this finding are inbound **LC/AO**, and inbound International Express Mail Service.⁶ The cost coverages shown for these services are not statistically meaningful since it is not possible to reject with 95 percent

⁶ These findings apply to the estimates of **ACP** found in the 1998 **ICRA** and not to the Service's estimates of Revenue per Piece which are regarded as accurate for this analysis.

confidence the null hypothesis that the actual cost coverage (the cost coverage without the sampling error) is greater or less than 100 percent.

The column of t-values provides the evidence of statistical significance. The critical value of "t" for a one-tailed test with an assumed confidence level of 95 percent is 1.645. For this test a t-value greater than 1.645 means that the Postal Service's measurement of ACP is sufficiently accurate to leave it more than 95 percent certain that revenue per piece covers the actual (but unknown) true ACP. Conversely, a t-value of less than -1.645 means that the measurement of ACP is accurate enough to make it more than 95 percent certain that revenue per piece will fall short of ACP. Higher (in absolute value) t-values make it possible to draw more precise conclusions about coverage. For example, the t-value of 4.5 for outbound letters and letter packages shows that the coverage for this category of mail is much greater than the margin needed to establish statistical significance. T-values near 1.645, such as those for outbound Surface AO and outbound Surface Parcel Post, show that the coverages for these categories fall much closer to the boundaries that mark statistical significance. Nevertheless, there is less than a 5 percent chance that the cost of outbound "Surface AO" is covered by revenue, or that the cost of outbound "Surface Parcel Post" is not covered.

Only inbound Air LC/AO and inbound International Express Mail Service have t-values with absolute values of less than 1.645. The cost coverage for inbound Air LC/AO is only 50.9 percent, however, the t-value of 1.645 shows that there remains a modest probability of around 12.5 percent that revenue per piece actually covers ACP. For inbound International Express Mail Service the cost coverage of 99.1 percent is so close to 100 percent that it has little statistical significance. The t-value of 0.05 means that the probability that revenue per piece actually covered ACP is only about 50.9 percent while the probability that revenue fell short of attributable cost is almost as large at 49.1 percent.

On the whole, the Commission is able to more accurately estimate ACP on outbound categories of International Mail than inbound categories. This occurs because a large share of the cost of outbound mail consists of international transportation costs and terminal dues while these components are completely absent from the **ACPs** for inbound mail. The Service's data systems can identify international transportation costs and terminal dues by mail category fairly precisely as shown by the low **CVs** for these cost categories in the table in Appendix D. On the other hand, the Service's data systems do a poor job of identifying the shares of domestic costs for most categories of International Mail as described by the much higher **CVs** for the domestic cost categories entitled "Mail Processing," "Delivery," "Other," and, especially, "Domestic Transportation".

The approximation formula makes evident the fact that the CV associated with the ICRA estimates of volume are particularly important as determinants of the overall CV of ACP for a category of mail. Fortunately, the Postal Service's estimates of volume by International Mail category are good, even for categories with relatively few pieces. The highest CV for volume, 6.67 percent, is reported for outbound surface AO, a fairly small category of mail. The largest categories of international mail are inbound and outbound letters, cards and letter packages. The ICRA volumes for these categories appear to be accurately estimated as evidenced by their volume **CVs** of 2.0-1 percent outbound and 2.50 percent inbound.

IV. PRESENTATION OF COST, VOLUME, AND REVENUE DATA

This section presents the volumes, costs, and revenues for international mail. As noted elsewhere, the costs underlying the calculated cost coverages (*i.e.*, the ratio of revenue to attributable cost) reflect the methodology the Commission has applied in setting current rates for domestic subclasses. Generally, this methodology results in attributable costs that are somewhat higher than the method that the Postal Service advocates, and leads directly to lower cost coverages than the Postal Service would obtain.

The Postal Service has introduced a cost for international mail which has no counterpart in domestic mail, namely, the incremental costs for international mail service as a whole. As noted earlier, this includes the cost of the International Business Unit and the difference in settlement costs between booked costs and imputed costs (booked costs are higher than imputed). This is discussed further in Section IV.A and Appendix F. It should be noted that on June 7, 1999, the Postal Service submitted an ICRA reflecting its preferred cost methodology. That report incorporated changes to its previous methods for estimating international transportation and settlement costs not reflected in the ICRA provided to the Commission on March 15, 1999 or the revised PRC Version submitted on June 11, 1999. Because of time constraints, the Commission has not been able to evaluate the merits of these new estimation methods. For this reason, the data presented below reflect the March 15, 1999, FY 1998 ICRA Report — PRC Version.

A. Aggregate Data

International mail is separated between outbound and inbound services. The Postal Service states it designs rates for each of the outbound services so as to recover all domestic handling and transportation costs, international transportation costs,

settlement costs, and a markup. Source 7, Response to Item 18. For inbound mail, the Postal Service recovers costs through settlement charges. For LC/AO inbound mail from UPU countries, the Postal Service agrees to accept as payment a terminal dues rate that is based on a worldwide average cost. This rate does not fully compensate the Service for the cost it incurs delivering inbound mail. There are important constraints on the ability of the Postal Service to make terminal dues compensatory. The Service is one of many voices at the UPU Congress. Further, because the UPU Congress only meets every five years, terminal dues rates generally remain in effect for five years. For these reasons, the Service seeks to obtain cost based bilateral agreements with other countries. Despite bilateral agreements, as Table IV-I shows, inbound mail still does not pay its own way.

TABLE IV-1
SUMMARY OF FY 1998 REVENUE AND **ATTRIBUTABLE** COST
FOR OUTBOUND AND INBOUND INTERNATIONAL MAIL
(Amounts in Thousands)

Category	Revenue (\$) (1)	Attributable cost (\$) (2)	Incremental cost (\$) (3)	Total Attributable Cost (\$) (4)	Contribution (\$) (5)=(1)-(2)	Cost Coverage (6)=(1)/(4)
Outbound Mail	1,332,796	1,020,520	-	1,020,520	312,276	1306%
Inbound Mail	282,311	207,379	-	287,379	(5,068)	98.2%
Subtotal	1,615,107	1,307,899	-	1,307,899	307,208	123.5%
Int'l Mail Incremental Cost	-	-	122,445	122,445	(122,445)	-
Grand Total	\$1,615,107	\$1,307,899	\$122,445	\$1,430,344	164,763	112.9%

Source: Table IV-2 -- Reflects ICRA Report released 6/1 1199

In contrast, Table IV-I shows that outbound international mail makes a contribution to the Postal Service's institutional costs. There are a number of factors that affect the amount of this contribution. One is that unlike inbound LC/AO mail, the Postal Service has direct control over the rates that it charges for outbound LC/AO mail.

Another is that terminal dues charged to the Postal Service for LC/AO mail are low relative to what it costs industrialized destinating countries to deliver this mail. As a net exporter to these countries, the Postal Service is in a position to benefit from the relatively low terminal dues that other industrialized countries are currently paid to deliver LC/AO mail.

As Table IV-2 shows, the United States exports about 1% times as much mail as it imports. Low terminal dues help keep the total unit cost of the mail that the Postal Service exports low, thereby increasing the Postal Service's ability to set rates on that mail which generate net revenue. Moreover, the Postal Service's cost of delivering inbound mail is relatively low, which minimizes the losses to the Postal Service from delivering inbound mail.⁷ Low terminal dues combined with the Postal Service's position as a substantial net exporter of international mail are important factors making it easier for the Postal Service to set rates that generate the net revenue it seeks from international mail.

In FY 1998, the cost coverage for outbound mail was 130.6 percent while the cost coverage for inbound mail was 98.2 percent. Adding the figures for inbound mail to the figures for outbound mail reduces cost coverage from 130.6 percent to 123.5 percent. The reduction in contribution to institutional cost is \$5 million.

Inbound mail is not the only drag on international mail cost coverage; incremental costs also reduce cost coverage. The incremental costs of international mail service as a whole are costs which cannot be causally associated with specific international services based on the information currently available, but that would be eliminated if all international services were eliminated. Some of these costs, those

⁷ The Postal Service's unit operating costs have historically been among the lowest of the postal administrations of the 21 most industrialized countries. Source 12, p. 100. This implies that for most of the industrialized world, terminal dues are less than the economic cost of delivering inbound mail.

associated with the International Business Unit, cannot even be traced exclusively to outbound mail or to inbound mail. The incremental cost for which international mail service as a whole is responsible is included in the calculation of the overall contribution to institutional cost and the cost coverage of international mail as a whole. As a result, the cost base for determining the cost coverage for international mail as a whole is greater than the sum of the cost bases of the individual international services. Using this approach, the contribution of international mail as a whole is reduced from \$307 million to \$185 million, and its cost coverage declines from 123.5 percent to 112.9 percent. See Table IV-I .

For comparison purposes, the systemwide cost coverage for domestic and international mail combined in FY 98 was 158.3.

B. Individual Services

This section highlights some of the FY 1998 results for individual services. The section discusses outbound and inbound mail separately and adds some further comments and observations in the last subsection.

In preparing this report, the Commission has not attempted to assemble a list of international mail products or services comparable to the domestic mail classification schedule. The list of international services in this report is not grouped according to homogeneous cost or demand characteristics designed to facilitate comparison of their cost coverages and rates with those of other international services, or with corresponding domestic mail services,

There are several factors that make compiling such a list difficult for international services. The structure of international mail classifications is, in large measure, determined by the Conventions of the UPU, and must be taken largely as given. The categories of mail defined by the UPU are broader than the corresponding subclasses of domestic mail in terms of content and service level, and therefore less homogeneous

in terms of cost and demand. **AO** mail, for example, includes mail that is similar to domestic Standard A, Standard B, and Periodicals mail. Service levels for the various categories of **LC/AO** mail are somewhat difficult to compare, either with other international categories or with domestic services. Some **AO** service is “surface” (non-priority) and some is “air” (priority) mail, while the corresponding domestic services generally receive non-priority service. Some **AO** mail (**ISAL**) is a hybrid of priority and non-priority service (receiving priority handling and air transportation within the U.S., but non-priority handling and ground transportation within the destinating country). A final factor making it difficult to compare the rates and cost coverages of international and domestic services is that terminal dues for **LC/AO** mail are not closely aligned with the cost of delivering such mail as they reflect a global average cost, and the level of terminal dues is sometimes below the economic cost of delivering mail in the destinating country.

The Postal Service submitted two documents that may assist the reader to more fully understand the scope of this issue. The first is a chart attempting to relate international and domestic services, Source 7, response to item 23, and the second is the Postal Service’s description of how it develops international mail rates, Source 7, response to item 18. These documents are Appendix G.

(1) Outbound Mail

Table IV-2 summarizes revenue and cost data for each international mail service.

TABLE IV.2
SUMMARY OF REVENUE, VOLUME, AND COSTS FOR OUTBOUND AND INBOUND INTERNATIONAL MAIL
 (COSTS REFLECT COMMISSION ATTRIBUTION METHODOLOGY)
 (Amounts in Thousands)

U.S. Total	Volume (1)	Revenue (2)	Volume Variable Cost (3)	Product Specific Cost (4)	Attributable Cost (5)=(3)+(4)	Contribution Revenue (6)=(2)-(5)	Unit Revenue Cost (7)=(6)/(1)	Unit Contribution Cost (8)=(5)/(1)	Unit Contribution Coverage (10)=(2)-(8)
OUTBOUND MAIL									
Surfaces									
1 Printed Matter & Small Packets, excl ISAL & Per	28,215	\$ 57,481	\$ -	\$ -	\$ -	\$ 57,481	\$ 2,037	\$ -	\$ -
2 Periodicals	85,082	\$ 88,815	\$ -	\$ -	\$ -	\$ 88,815	\$ 1,054	\$ -	\$ -
3 Parcel Post	2,312	\$ 57,667	\$ -	\$ -	\$ -	\$ 57,667	\$ 24,917	\$ -	\$ -
4 Int'l Surface Airmail	183,587	\$ 118,120	\$ -	\$ -	\$ -	\$ 118,120	\$ 0,710	\$ -	\$ -
5 ValuePost/Canada		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0,0%
6 Subtotal, Surfaces	259,196	\$ 292,003	\$ 310,890	\$ -	\$ 310,890	\$ (11,077)	\$ 1,157	\$ 1,189	\$ (0,943)
Air									
7 Letters and Letter Packages	510,053	\$ 451,943	\$ -	\$ -	\$ -	\$ 451,943	\$ 0,888	\$ -	\$ -
8 Postcards, Postal Cards, and Aerogrammes	83,010	\$ 31,298	\$ -	\$ -	\$ -	\$ 31,298	\$ 0,487	\$ -	\$ -
9 Printed Matter and Small Packets (AQ)	45,017	\$ 194,833	\$ -	\$ -	\$ -	\$ 194,833	\$ 4,328	\$ -	\$ -
10 International Priority Airmail Service	52,843	\$ 39,218	\$ -	\$ -	\$ -	\$ 39,218	\$ 0,742	\$ -	\$ -
11 Bulk Letter Service to Canada		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0,0%
12 Parcel Post	4,240	\$ 124,029	\$ -	\$ -	\$ -	\$ 124,029	\$ 29,252	\$ -	\$ -
13 Express Mail International Service	4,694	\$ 125,363	\$ -	\$ -	\$ -	\$ 125,363	\$ 26,707	\$ -	\$ -
14 Subtotal, Air	679,857	\$ 968,688	\$ 633,284	\$ -	\$ 633,284	\$ 333,402	\$ 1,422	\$ 0,490	\$ 152,8%
Initiatives									
15 Global Priority Mail		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
16 Global Package Link		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17 Direct Entry/Inbound		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
18 International Customized Mail		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
19 Subtotal, Initiatives	33,002	\$ 66,307	\$ 51,292	\$ 25,084	\$ 76,356	\$ (10,049)	\$ 2,099	\$ 2,314	\$ (0,304)
20 Total Outbound	972,055	\$ 1,332,790	\$ 995,456	\$ 25,084	\$ 1,020,520	\$ 312,270	\$ 1,371	\$ 1,050	\$ 0,321
INBOUND MAIL									
21 Surface LCAO	46,735	\$ 36,037	\$ -	\$ -	\$ -	\$ 36,037	\$ 0,784	\$ -	\$ -
22 Surface Parcel Post	2,142	\$ 16,752	\$ -	\$ -	\$ -	\$ 16,752	\$ 7,821	\$ -	\$ -
23 Surface Subtotal	48,877	\$ 52,789	\$ 62,561	\$ -	\$ 62,561	\$ (9,772)	\$ 1,092	\$ 1,280	\$ (0,188)
24 Air LCAO	367,926	\$ 163,178	\$ 180,832	\$ -	\$ 180,832	\$ (17,653)	\$ 0,278	\$ 0,307	\$ (0,000)
25 Express International Mail Service	3,763	\$ 30,137	\$ -	\$ -	\$ -	\$ 30,137	\$ 8,008	\$ -	\$ -
26 Air Parcel Post	2,192	\$ 20,029	\$ -	\$ -	\$ -	\$ 20,029	\$ 9,137	\$ -	\$ -
27 Air Subtotal	593,881	\$ 213,345	\$ 222,081	\$ -	\$ 222,081	\$ (8,736)	\$ 0,358	\$ 0,374	\$ (0,015)
28 Direct Entry/Inbound	301	\$ 116	\$ -	\$ -	\$ -	\$ 116	\$ 0,385	\$ -	\$ -
29 Global Priority Services	1,049	\$ 2,552	\$ -	\$ -	\$ -	\$ 2,552	\$ 2,433	\$ -	\$ -
30 Other ZI		\$ 12,909	\$ -	\$ -	\$ -	\$ 12,909	\$ -	\$ -	\$ -
31 Total Inbound	844,108	\$ 282,311	\$ 287,378	\$ -	\$ 287,378	\$ (5,068)	\$ 0,438	\$ 0,446	\$ (0,008)
32 International Service Incremental Cost				\$ 122,445	\$ 122,445	\$ (122,445)			
33 Total International Mail	1,816,163	\$ 1,615,107	\$ 1,282,835	\$ 147,568	\$ 1,430,344	\$ 184,763	\$ 1,071	\$ 1,050	\$ 1,129%

Source: FY 1998 International Cost and Revenue Analysis Report-PRC Version, June 11, 1999, pp. A.1, A.2, A.6, and A.7. USPS Response to Fifth Notice II.
 Note: International Service Incremental Costs reflect (1) the cost of the International Business Unit and (2) the difference in settlement charge claims. These costs are incremental to international service as a whole, i.e., eliminating any one individual service or any group of services would have no effect on the amount of these costs.

ZI The Postal Service did not provide separate cost data for these services, but it did provide separate revenues and volumes. The revenues and volumes for ValuePost/Canada cannot be separated between surface periodicals and all other surface AQ. Therefore, the costs, revenues, and volumes for ValuePost remain in surface periodicals and all other surface AQ. The revenues and volumes for Bulk Letter Service to Canada can be separated from the data for Air Letters. Since the costs for Bulk Letters to Canada would remain in the cost for Air Letters, the unit cost, contribution, and cost coverage for Air Letters would be overstated. For this reason, the data for Bulk Letters to Canada remains in the Air Letter category.

ZI The revenue amount reflects Internal Air Conveyance Data and Transit revenue. Corresponding costs are included in inbound costs by service.

It shows that of the fourteen outbound services for which the Commission received separate cost data, at least four are **noncompensatory**:⁸ (1) Surface Printed Matter and Small Packets; (2) Surface Periodicals; (3) Global Priority Mail; and, (4) Global Package Link. During FY 1998, Surface Printed Matter and Surface Periodicals experienced cost coverages of percent and percent, respectively. According to the Postal Service, the contribution was positive for Fiscal Years 1993 to 1995, but was slightly negative in FY 1996, correlating with the increase in terminal dues that went into effect in the second quarter. The negative contribution continued in FY 1997 and FY 1998. The Postal Service acknowledged that because of these poor results, it planned an average increase of about 15 percent for these services. The increase became effective May 30, 1999. The Postal Service also stated that it might have to raise these rates still more in the future. Source 7, Response to Item 12.

Global Package Link had a cost coverage of percent in FY 1998 with attributable costs exceeding revenues by . The Service reported that the businesses using this service were adversely affected by the downturn of the global economy and the corresponding decrease in value of some foreign currencies. The economic slowdown hurt the Postal Service's business customers because there were substantially fewer overseas orders and, accordingly, fewer packages were mailed. The Postal Service believes that revenue will cover cost in FY 1999 because (1) it has increased rates by about 9 percent on average; and, (2) it expects to achieve cost reductions in this area. The Postal Service did not provide any specific information on the expected cost reductions. Source 7, Response to Item 12.

Global Priority Mail shows a cost coverage of percent for FY 1998. The Postal Service observes that revenues covered volume variable costs but not the

⁸ The Postal Service did not provide separable data for Bulk Letter Service to Canada and ValuePost/Canada. However, based on FY 97 results it implemented rate increases that did not become effective until well into FY 99.

combination of volume variable and product specific costs. Revenues fall short of costs by _____ when product specific costs are included. The Postal Service believes the contribution to institutional costs will improve because of expected reductions in advertising expense that accounted for _____ of the _____ product specific cost in FY 1998 and because of the 14 percent average rate increase that was effective in December, 1998. Source 7, Response to Item 12.

ValuePost/Canada and Bulk Letter Service to Canada are services with very little volume. The Postal Service provided ValuePost/Canada's share of the revenue and volume of Surface AO overall, but did not provide ValuePost/Canada's share of the revenue and volume of Surface AO's component parts (periodicals and all other). The revenues and volumes of Bulk Letter Services to Canada remain subsumed within the revenues and volumes that the Postal Service provided for Air Letters. The Postal Service did not provide separate attributable cost estimates for either of these services.

Early in the § 3663 information gathering process, the Commission asked the Postal Service to identify the FY 1998 costs attributable separately to ValuePost/Canada and Bulk Letter Service to Canada. See Order No. 1226 at 3 and Attachment. The Postal Service stated that it did not track costs separately for these services. Comments of the United States Postal Service on Order No. 1226, filed January 29, 1999, at 3. Subsequently, the Postal Service indicated that it bases rates for these services on costs estimated separately for each service. See Appendix A, Source 7. Twice, the Commission requested the FY 1998 attributable cost estimates for each of these services that the Postal Service would use to set rates for those services. Order No. 1240, Item 3; Order No. 1244, Item 6. Twice, the Postal Service did not directly respond. See Source 3, Item 3, filed May 17, 1999, and Source 8, Item 6, filed May 27 1999.

In Order No, 1251, the Commission described specific calculations that it suspected the Postal Service applied to FY 1997 data to estimate the attributable costs

for ValuePost/Canada and Bulk Letter Service to Canada that the Postal Service used when it designed the rate increases for those services that took effect May 30, 1999. The Commission asked the Postal Service to confirm that it used the calculations described, and to provide equivalent calculations for FY 1998. The Postal Service's response to Order No. 1251 confirmed that it used the method of calculating FY 1997 costs that the Commission described, but said that the data needed to perform equivalent calculations for FY 1998 were not available. For this reason, the Commission has not been able to report separate attributable cost estimates for these services for FY 1998, and therefore can not compute cost coverages for these services.

(2) Inbound Mail

As shown on Table IV-Z, inbound mail, as a whole, had a cost coverage of 98.2 percent in FY 1998 with revenue falling short of attributable cost by over \$5 million. The losses are directly traceable to Surface LC/AO and Air LC/AO. These services combined to lose million. The difference in cost coverage is a result of how settlement charges (terminal dues, etc.) are established.

UPU terminal dues rates are based on global average cost and are noncompensatory for the U.S. Postal Service. The U.S. Postal Service has entered into separate agreements with Canada and the European Bilateral group, presumably, to obtain rates that cover costs. However, the remaining UPU countries account for 42 percent⁹ of inbound LC/AO and the Postal Service still did not achieve a compensatory cost coverage for inbound LC/AO as a whole. The Commission was not able to satisfactorily disaggregate costs by terminal dues regime because the costs provided by the Postal Service are averaged across regimes.

⁹ Based on Postal Service Response to Order No. 1236, Item 15.

Unlike terminal dues, inward land charges for parcel post and imbalance charges for EMS are not based on a global average, but reflect country-specific costs. For parcel post, each country publishes annual rates reflecting a per-piece and per-kilogram rate. The U.S. Postal Service also has bilateral agreements with ten countries. As Table IV-2 shows, the unit revenues exceed the unit attributable costs for both categories of parcel post. Surface parcel post and air parcel post show cost coverages of percent and percent respectively. Achieving a positive outcome for EMS, should not pose a problem as the Postal Service is free to enter into bilateral agreements with other countries in which rates can be cost based. In fact, the U.S. Postal Service has agreements with 188 countries. Source 9, pp. 5 and 6. The cost coverage for inbound EMS is percent.

(3) Other Comments

The Postal Service provided the distribution of the major categories of outgoing international mail between Household and Non-Household mailers. Table IV-3 arrays this information along with revenue and cost data.

TABLE IV-3
COMPARISON OF REVENUE AND COST DATA
AND PERCENTAGE DISTRIBUTION OF **ORIGINATING** VOLUME
FOR SELECTED INTERNATIONAL MAIL CATEGORIES

Mail Categories	Percentage Non-Household (1)	Distribution Household (2)	Revenue (\$) (3)	Attributable cost (\$) (4)	cost Coverage (5)
<u>Mostly NHH</u>					
EMS	91%	9%	125,363		
ISAL	100%	0%	116,120		
IPA	100%	0%	39,219		
Air AO	65%	35%	194,833		
Air CP	60%	40%	124,029		
Surface AO	90%	10%	126,076		
Subtotal			725,640	600,414	120.9%
<u>Mostly HH</u>					
Air LC	45%	55%	483,242		
Surface CP	11%	89%	57,607		
Subtotal			540,849	343,750	157.3%

NHH = Non-Household; HH = Household

Source: Postal Service Response to Second Notice, Item 21 & Table IV-2

The weighted average cost coverage for the two categories with the highest proportion of Household mail is 157.3 percent. For the six categories of mail with the highest proportion of non-household mail, the cost coverage is 120.9 percent. The largest volume category, Air Letters and Cards, which contains 55 percent household mail (315 million pieces),¹⁰ has the second highest cost coverage at _____ percent. The second largest volume category is ISAL mail (164 million pieces), which contains no household mail. It has a cost coverage of _____ percent.

¹⁰ 573 million pieces from Table II-1 times 55 percent from Table IV-3.

Appendices

LIST OF REFERENCE SOURCES

Source No.	Reference Documents
1	Workpaper 1 B, International Cost and Revenue Analysis, FY 1998, Summary Description and Documentation Volume 2, Technical Description
2	Exhibit 3C, SIRVO – MIDAS Interface, Training Guide, February, 1996
3	USPS Response to Third Notice of International Mail Data Requirements, Order No. 1240
4	Exhibit 3B, System for International Revenue and Volume/Inbound, Reference Manual, February, 1994
5	Workpaper 1 E, International Cost and Revenue Analysis, FY 1998, Summary Description and Documentation, Appendices – Part 3 of 6
6	File: ICRAPRC4.XLS; Sheet: TRACS Input; Cells B1 to CK38.
7	USPS Response to Second Notice of International Mail Data Requirements, Order No. 1236
8	USPS Response to Fourth Notice of International Mail Data Requirements, Order No. 1244
9	Billing, payment, and Accrual Process for Terminal Dues and International Transportation Cost (Paper attached to FY 1998 International Cost and Revenue Analysis Report – Postal Service Version)
10	Workpaper 1 H, International Cost and Revenue Analysis, FY 1998, Summary Description and Documentation, Appendices – Part 6 of 6
11	USPS Response to Fifth Notice of International Mail Data Requirements, Order No. 1246
12	Cohen, et al., A Cross Sectional Comparison and Analysis of Productivity for 21 National Postal Administrations, Printed in Managing Change in Postal and Delivery Industries, edited by Crew and Kleindorfer, Kluwer Academic publishers, 1997

- 13 USPS electronic workpapers, File: **ICRA98IB.XLS**, Sheets IPK981 and IPK982
- 14 Postal Operations Council of the Universal Postal Union, World Round Table on Terminal Dues, Geneva, 3 and 4 February 1999, page 18 (**CEPT TR 1999.1-Doc2**)

OUTBOUND INTERNATIONAL SERVICES

SURFACE

Printed Matter and Small Packets (AO)

Printed matter includes regular printed matter such as advertising circulars and catalogues, small packets (gifts, samples, merchandise), books and sheet music, and publishers' periodicals. Printed matter has two levels of service — surface and air. Surface printed matter is a non-priority service. Rates are based on weight. There are separate rates to Canada, Mexico, and the rest of the world, reflecting differences in terminal dues and other settlement regimes, and transportation costs. Surface printed matter has different rates for three **subcategories**— Regular Printed Matter, Books and Sheet Music, and Publishers Periodicals.

Publishers' Periodicals

Publishers' Periodicals is offered only to publishers and registered newsagents for mailings that would qualify for the domestic publishers' periodicals classification if destined within the United States,

International Surface Airlift (ISAL)

ISAL is a bulk mailing service for the delivery of publications, advertising mail, catalogs, directories, other printed matter, and small packets. Mailers must meet a **50-pound** minimum mailing requirement and presort mail by country. ISAL costs less than airmail, but is much faster than surface AO. Per-piece and per-pound rates are charged. There are different rates for the full service, gateway, and direct shipment

options. Under the full service option, **ISAL** receives air transportation to the domestic gateway city, where it is **flown** to the destinating country and entered into that country's surface mail system for delivery. Under the gateway option, customers receive a reduced rate for entering **ISAL** shipments at designated US. acceptance cities. An **ISAL** mailer with a minimum of 750 pounds addressed to each destinating country may receive a direct shipment rate if direct transportation from a gateway city can be arranged ahead of time. Rates differ by region, reflecting differences in terminal dues regimes and transportation costs.

ValuePost/Canada

Value/Post Canada is an **ISAL-equivalent** service that reflects the terminal dues that apply to mail exchanged with Canada Post. There are distinct rates for letters, and for flats. There is a per-piece charge for letters up to one ounce, and for flats up to five ounces. Above these thresholds, both piece and pound charges apply.

Parcel Post

International parcel post is similar to domestic parcel post. Generally, anything other than personal correspondence may be mailed parcel post. Surface parcel post is a non-priority service comparable to domestic zone-rated parcel post. There is a maximum weight limit that varies from **11** to 70 pounds depending on the destinating country. Single-piece rates are charged. There are different rates for mail destined to Canada, Mexico, and five country groups, reflecting differences in transportation costs and inward land charges.

M-Bag Service

M-Bag service allows a mailer to prepare a direct sack of printed matter weighing between 11 pounds and 66 pounds to a single address. A reduced terminal dues rate of 0.653 SDR/kg applies that reflects its reduced sorting costs.

AIR

Air Letters and Cards

Air LC consists of personal correspondence, statements of account, and other business-oriented transactions mail. Mailers are typically individuals, households, and small business enterprises. Single-piece rates are charged. Air LC is offered as a universal service. Rates are weight-based and unzoned, but there are different rates to Canada, Mexico, and the rest of the world. Air letters receive First-Class Mail service in the United States, travel by the most expeditious transportation mode available, and receive airmail or priority treatment in the destinating country.

Aerogrammes and Post Cards

An aerogramme consists of a single page that folds into a light-weight, self-sealing envelope. It is designed for personal correspondence. Post cards are not sealed. They are designed for business and personal correspondence. A per-piece rate applies to both. The aerogramme rate is universal. There are different card rates to Canada, Mexico, and the rest of the world.

International Priority Airmail (IPA)

IPA is a bulk air service for LC/AO mail. Per-piece and per-pound rates are charged. Rates differ by region, reflecting differing terminal dues regimes and transportation costs. Under the non-presort option, mailers must meet a minimum ten-pound volume requirement. Under the presort option, mail must be presorted to destinating country. There are three rate groups. A presorted mailing must have a minimum of ten pounds destined to a specific rate group.

Printed Matter and Small Packets (AO)

Air printed matter is a priority service. Rates are based on weight. Rates reflect differences in settlement charge regimes and transportation costs. There are different rates to Canada, Mexico, the rest of the western hemisphere, Asia and Africa, and the Pacific Rim.

Bulk Letter Service to Canada

This is a bulk letter service to Canada. Five hundred pieces weighing three ounces or less are needed to qualify for this service. In addition, mailers are required to tray their mail and apply a Canadian post code to each piece. The rates for this service represent a fixed reduction from the Air LC single-piece rate.

Parcel Post

Air parcel post is a priority service comparable to domestic priority mail. There are maximum weight limits that **vary** by destinating country. Single-piece rates are charged. There are different rates for mail going to Canada, Central America, and the rest of the world.

*Express Mail **International Service (EMS)***

International EMS may consist of almost any type of document or merchandise. It is the fastest of the international services offered by the Postal Service. EMS receives priority handling in the destinating country, by either the local postal administration or by private courier. There are two levels of service — Custom Designed and On Demand. Custom Designed service follows a prearranged schedule. On Demand service does not. Service is provided to 180 countries. Postage is based on weight. There are distinct rates for Canada, Mexico, Great Britain+ China, Japan, and five other rate groups.

INITIATIVES

Global Package Link (GPL)

GPL is a bulk mailing system that provides international delivery of packages containing merchandise. GPL is designed to make it easier and less costly for mailers to export goods. The Postal Service provides GPL on a destination country-specific basis to Brazil, Canada, Chile, China (People's Republic of), France, Germany, Hong Kong Special Administrative Region, Japan, Mexico, Singapore, and the United Kingdom.

To qualify for GPL service, a mailer must enter into a service agreement with the Postal Service and send a minimum of 10,000 packages a year. In addition, the mailer must link its information system to that of the Postal Service so that the Postal Service can automatically extract information about each package needed to produce customs forms and package labels and to provide tracking and tracing.

GPL offers premium, standard, and economy service. Service enhancements offered are merchandise return, insurance, customs forms and clearance, and payment of customs duties.

Global Priority Mail (GPM)

GPM is an expedited airmail letter service providing delivery of all items mailable as letters or merchandise up to 4 pounds. GPM items receive priority handling in the United States and in destination countries. Single-piece and volume rates are available. Separate rates are available for small envelope, large envelope, boxes, and Variable Weight Service. Variable Weight Service has a single-piece and a bulk rate. For single-piece rates, the mailer must have a minimum of five or more pieces to one or more GPM countries. To qualify for bulk rates, the mail must be separated by geographic rate zone (Western Europe, Pacific Rim, and Canada).

GPM single-piece variable weight option pieces, GPM flat-rate envelopes, and GPM flat-rate boxes with postage affixed may be deposited wherever Express Mail is accepted. On-call or scheduled pickup service is available in cities where GPM is accepted. GPM pieces mailed at volume rates must be deposited at a business mail acceptance unit authorized to receive GPM.

Global Direct Service

Global Direct Service to or from Mexico, Canada, Brazil, and Great Britain is available only pursuant to a service agreement between the Postal Service and a qualifying mailer. The mailer tenders to the Postal Service items meeting the applicable makeup and preparation requirements for domestic mail in the country of destination. The Postal

Service transports the items to the destination country for entry into its domestic mail system.

To qualify for Mexico Direct, a mailer must have operations in both the United States and Mexico. In addition, the mailer must agree to send at least 70,000 Mexico Direct items during a **60-day** period. The charge for this service is \$1 .01 per pound or fraction of a pound (plus the applicable Mexican domestic postage). To qualify for Global Direct - Canada **Admail**, a mailer must enter a minimum of 25,000 identical printed matter items that meet the applicable eligibility, makeup, and preparation requirements for Canadian Post domestic Addressed **Admail** service. The size, weight, and level of sortation of the items being mailed determine the rate of postage.

Global Parcel Services (GPS)

GPS is an inbound parcel delivery service being tested with a limited number of foreign postal administrations. It is described as an inbound mail order fulfillment service. The mail is entered directly into the domestic mailstream, generally as Priority Mail. In FY 1998 GPS was received from only one country.

International Customized Mail (ICM)

ICM service is available only pursuant to an **ICM** service agreement between the Postal Service and a mailer meeting volume and postage requirements. The mailer must be capable, on an annualized basis, of (1) tendering at least 1 million pounds of international mail to the Postal Service, or (2) paying at least \$2 million in international postage to the Postal Service. There are no published rates for ICM.

Several services are available on ICM terms. They **are** International Surface Airlift (**ISAL**), **ValuePost**, and Express Mail Service (**EMS**). Discounts are negotiated on an individual customer basis. For costing purposes, the ICM portions of each of these services are presented collectively as ICM costs in the initiatives section of the **ICRA**.

MEASURING THE COSTS, REVENUES AND VOLUMES OF INTERNATIONAL MAIL

This appendix addresses the underlying data sources and the methodology the Postal Service uses to calculate the revenue, pieces, weight, and attributable cost (PRC version) for international mail. The section is organized as follows: (1) outbound revenue, pieces, and weight (RPW); (2) inbound RPW; (3) the attributable costs of standard services; (4) the attributable cost of initiatives; and (5) International Mail Service Incremental Costs. Standard services is a descriptive term used in this appendix to differentiate the traditional or standard international mail services, e.g., air letters and cards, from the new service offerings the Postal Service refers to as initiatives. While the revenues and volumes for the initiatives are collected through the Permit system and other similar census-based systems, their attributable costs are developed using a variety of sources and calculation procedures. The Postal Service also has presented costs it considers to be incremental to International Mail service as a whole. The nature of these costs is discussed in subsection (5) of this Appendix. Responsibility for these costs is discussed in Section IV.

(1) Outbound Revenue, Pieces, and Weight

The Postal Service develops estimates of revenue, pieces, and weight for outbound mail using five different systems: (1) the Permit system; (2) the Electronic Marketing Reporting System (EMRS); (3) the International Business Information System (IBIS); (4) the Corporate Business Customer Information System (CBCIS); and (5) the System for International Revenue and Volume/ Outbound (SIRV/O). Of the five systems, the first four collect census information as part of the Postal Service's accounting process. In FY 1998, they captured 33 percent of all international outbound volume. Source 1, pp. 7-6 to 7-8 and Table C-1. The fifth system, SIRV/O, is a

statistical sampling system designed to collect revenue, pieces, and weight for international mail not incorporated into the Postal Service's accounting systems. SIRV/O, in turn, is supported by the Military and International Accounting and Dispatch System (MIDAS). Source 1, p. 7-3. This is an operating system that tracks all outbound mail. Source 1, p. 7-1. It provides the weight of mail by UPU class, destination country, and transportation mode. MIDAS, therefore, provides a control weight figure for adjusting the sample (SIRV/O) volume to coincide with a direct measure of the actual weight of International Mail. Source 1, p. 7-1 and Source 2, p. 1. SIRV/O accounted for 67 percent of all international outbound mail in FY 1998.

Table C-1.

Because some mailers enter their mail at offices that do not have the Permit system in place, the Service supplements its data systems by obtaining census data on revenue, pieces, and weight from special Postmaster reports and from postage statements and account activity reports. Source 1, p. 9-1. The table below shows the distribution of piece volumes by mail category and data source.

Table C-1

DISTRIBUTION OF OUTBOUND VOLUME
BY INTERNATIONAL MAIL CATEGORY AND DATA SOURCE

international Mail Category	Data Source	Piece Volume (000) (1)	Percent Distribution of Volume (2)
<u>OUTBOUND MAIL</u>			
Surface			
Printed Matter & Small Packets, excl. ISAL & Per	SIRV/O	28,215	2.9%
Periodicals	Permit	65,082	6.7%
Parcel Post	SIRV/O	2,312	0.2%
Int'l Surface Airlift	Permit	163,587	16.8%
ValuePost/Canada	Permit		
Subtotal, Surface		259,196	26.7%
Air			
Letters and Letter Packages	SIRV/O	510,053	52.5%
Postcards, Postal Cards, and Aerogrammes	SIRV/O	63,010	6.5%
Printed Matter and Small Packets (AO)	SIRV/O	45,017	4.6%
International Priority Airmail Service	Permit	52,843	5.4%
Bulk Letter Service to Canada	Permit		
Parcel Post	SIRV/O	4,240	0.4%
Express Mail International Service	EMRS	4,694	0.5%
Subtotal, Air		679,857	69.9%
Initiatives			
Global Priority Mail	IBIS/CBCIS		
Global Package Link	Permit+		
Direct Entry/Inbound	Permit		
International Customized Mail	Postage St+		
Subtotal, Initiatives		33,303	3.4%
Total Outbound		972,356	100.0%
Volume from Sample		652,847	67.1%
Volume from Census Information		319,509	32.9%
Total Outbound		972,356	100.0%

Source: FY 1998 ICRA, pp. A-1, A-2, and A-3 and Source 1, pp. 7-6 to 7-8.

Note: Permit + equals Permit system & Postmaster Reports Postage St + equals Postage Statements & Account Activity Reports

categories account for 94 percent of the census data. The other three services, International Express Mail, Global Priority Mail and International Customized Mail are tracked by other accounting systems that are similar to the Permit system in that they directly collect mailer information on revenue, pieces, and weight on a census basis. Express mail data are collected in the EMRS. GPM data come from the IBIS and CBCIS. The IBIS houses information on four of the five GPM services: small envelope, large envelope, boxes, and variable weight. The Variable Weight Service is composed of a single piece service and a bulk service. The IBIS collects the total RPW data for variable weight service, while the CBCIS collects only the bulk service portion. The single-piece service portion is obtained by subtracting the bulk service totals from the combined service totals. Source 1, p. 7-8.

Most of the volume and revenue data for GPL are contained in the Permit system; however, during FY 1998, there were some customers who entered their mail at postal facilities without the Permit system. For this reason, the Postal Service assembled the revenues and volumes from the Postmaster Reports at the applicable facilities. The same problem arose for the mailers using ICM during FY 1998. The revenues and volumes for this service are developed using postage statements from the specific-facility and account activity reports maintained in the International Business Unit (IBU). Source 1, p. 9-l.

Sample Data. The SIRV/O collects data on the lion's share of total outbound mail volume (652.8 million pieces in FY 1998). Table C-l. It collects RPW data for the other six services shown in Table C-l: (1) Surface Printed Matter, (2) Surface Parcel Post, (3) Air Letters and Letter Packages, (4) Air Cards and Aerogrammes, (5) Air Printed Matter, and (6) Air Parcel Post. Source 1, p. 7-7. The SIRV/O also collects RPW data for Periodicals, ISAL, and IPAS. The SIRV/O data is used to develop country-specific information, not total outbound volume for these services. These come from the Permit system, as noted earlier. Source 1, p. 7-7.

The SIRWO is a random sampling system stratified as follows: (1) destination country or country group; (2) Origin Exchange Office (OEO) group; (3) transportation mode (Surface, Air, ISAL); (4) MIDAS container type (e.g., bags, letter trays, flat trays); (5) MIDAS mail category (LC, AO, CP); and, (6) weight. The Postal Service selects a cluster sample within the stratum for measuring revenue, pieces, and weight. Clusters are defined as **mailflow** days where a **mailflow** represents a unique combination of destination foreign city, U.S. origin exchange office, transportation mode, MIDAS container type, and Midas mail category. Source 1, p. 7-3.

MIDAS is the primary component of SIRV/O. It is a network computer system with nodes in all U.S. offices dispatching international mail. Source 1, p. 7-5. It is an automated dispatching system that produces a billing record for the payment of air and surface carriers. It yields a census count of the gross weight (ie., weight of mail + weight of container) of outbound international mail by country, transportation mode, and UPU class. Source 1, pp. 7-1, 7-3, 7-6, 7-7. The weights recorded in this manner, when summed to country, transportation mode, and class, form control totals for the SIRWO estimates. The control totals are used to expand sampled revenues, pieces, and weight to the universe. Source 1, p. 7-7. MIDAS also identifies the active mailflows for the cluster samples, and automatically selects mail containers for sampling, based on the Postal Service's testing schedule and the expected total weight of the **mailflow** 'day. The ultimate sample is a container of mail. Source 1, p. 7-3.

MIDAS collects data on all outbound international mail. The SIRWO supplements the MIDAS system in three important ways. First, MIDAS does not collect information on the number of pieces. Second, MIDAS treats LC and AO mail as a combined total, while the Postal Service needs separate volumes for LC and AO mail for costing and pricing purposes. Third, MIDAS measures the gross weight of mail, *i.e.*, it includes the weight of the mail container in its estimate. The SIRWO sampling system identifies the weight of the mail and of the container separately. The Postal Service,

therefore, is able to adjust the final volume estimates to correct for the difference between the gross weight and the net weight of mail.

The Postal Service uses an auxiliary sampling system independent of the SIRV/O to estimate the GPM volume distribution by country. The data residing in the IBIS and CBCIS do not contain information on destination country. Source 1, p. 7-8. The sampling process is similar to the SIRV/O process. The strata are defined as the origin exchange office and destination country. The ultimate sample unit is a container of outbound GPM. GPM is always transported in its own container to ensure expedited handling. Source 1, p. 7-8. The sample data on revenue, pieces, and weight is expanded to the universe on the basis of the sampling fraction and the control totals from the IBIS and CBCIS. Source 1, p. 7-8. The Postal Service uses the resulting volumes for each GPM service, and the applicable GPM rate schedule, to develop the revenues. Source 1, p. 7-8.

(2) Inbound Revenue, Pieces, and Weight

The Postal Service's International Accounts Branch (IAB) routinely collects volume information on inbound international mail from the manifests that accompany the mail. Source 1, p. 6-1 and Source 8, Response to Item 2. The data are used to compute settlement charges, which are the revenues the Postal Service receives for delivering inbound mail. Source 1, p. 3-5. Through the manifest process, the Postal Service collects piece and weight data for parcel post, international express mail, and M-bags. For LC/AO mail (including inbound ISAL), it collects only the weight of the mail. To develop the number of pieces of inbound LC/AO, the Service estimates the average number of pieces per kilogram by transportation mode, and country or terminal dues regime. Then, it multiplies the total weight of inbound LC/AO mail for each country by the applicable pieces per kilogram. Source 1, p. 8-2 and 8-5. This estimate is derived from the System for International Revenue and Volume/Inbound (SIRV/I). As

the table below shows, the SIRV/I estimate of pieces per kilogram is used to calculate piece volumes for 98.6 percent of inbound mail.

The SIRV/I is based on a stratified random sampling system. The strata are defined as foreign origin country, U.S. destination exchange office, and transportation mode (Surface, Air, and ISAL). Source 1, p. 8-1. Each combination of these three

TABLE C-2

SUMMARY OF INBOUND VOLUME BY DATA SOURCE

Mail Category	Data Source	Calculation Method	Piece Volume (000) (1)	Percent Distribution of Volume (2)
Surface LC/AO	SIRV/I	Kg x p/Kg	46,735	7.3%
Surface CP	IAB	N/A	2,142	0.3%
Air LC/AO	SIRV/I	Kg x p/Kg	587,926	91.3%
Air CP	IAB	N/A	2,192	0.3%
Express Mail	IAB	N/A	3,763	0.6%
Global Parcel Svc	IAB	N/A	1,049	0.2%
Total	Sum of Lines 1 thru 6		643,807	100.0%
SIRV/I	L.1 + L.3		634,661	98.6%
IAB	Sum of Lns. 2, 4, 5, & 6		9,146	1.4%
			643,807	100.0%

Source: Table III-5, Summary of Revenues, Volumes, and Attributable Cost characteristics defines a **mailflow** for sampling purposes. Sampling fractions differ between surface and air transportation. When the Service selects a **mailflow** day, a systematic sample of inbound mail containers is selected at the destination exchange office. The data technician records the gross weight and the tare weight of the container, the number of pieces in the container, and for each piece, whether it is a letter, a flat, a packet, or a parcel. The technician also records the number of containers available for sampling that day. Source 1, p. 8-1.

Using the expanded' piece and weight data from the SIRV/I, the Service estimates pieces per kilogram (based on gross weight) by country and transportation mode. This produces a measure of pieces per kilogram for (1) Surface LC/AO; (2) Air LC/AO; and, (3) ISAL. These estimates align with lines 1 and 3 of Table C-2 where ISAL is included in Surface LC/AO. To develop the annual piece volumes by country and transportation mode, the Postal Service multiplies the total kilogram weight of inbound mail for each foreign origin country and transportation mode by the corresponding estimated pieces per kilogram. According to the Postal Service, this is a standard method for calibrating a sample estimate to the universe that takes advantage of the positive correlation between weight and pieces. Source 1, p. 8-4. In the case of countries with very small sampled volumes, the Postal Service uses the UPU or the EURB average pieces per kilogram, as applicable, rather than the specific country estimate. Source 1, p. 6-2 and Source 5, pp. 52 and 53.

Having described how the Postal Service estimates annual volumes for LC/AO, parcel post, international express mail, and M-bags, a discussion of the development of inbound revenues follows. This process is conceptually straightforward since the rates are known for terminal dues (LC/AO and M-bags), inward land charges (parcel post), and imbalance charges (EMS). However, the rates for LC/AO differ between Canada, UPU countries, and the European Bilateral countries. For parcel post, each country publishes its own inward land charges annually. For EMS, the U.S. Postal Service maintains bilateral agreements with other countries. Further, since all the rates for terminal dues, etc., are in terms of SDRs (Special Drawing Rights), the Postal Service must use the applicable exchange rate to convert SDRs to U.S. dollars. To calculate the revenue for inbound mail, the Postal Service aligns the applicable volumes with the applicable rate for terminal dues, etc., with the applicable exchange rate, and multiplies the three numbers. Source 1, p. 6-l.

¹Raw sample estimate divided by the sampling rate or sampling fraction to obtain the estimate for the entire population.

The agreement with Canada for LC/AO mail contains separate rates for letters and flats. To accommodate this agreement, the U.S. Postal Service maintains a separate system for accumulating Canadian revenue and volume information. The system also covers parcel post. The development of revenue for inbound Canadian mail follows the same calculation procedure described above. Source 1, pp. 6-1 and 6-3.

Since this procedure provides imputed values for inbound revenues, the Postal Service adjusts the revenues for each UPU service so that, in aggregate, they match the total revenues included in the Domestic RPW Report. Source 1, p.6-3.

Finally, the aggregate revenues for air conveyance dues and transit fees are obtained from the Postal Service's revenue accounts. Source 1, p. 6-3. Air conveyance dues are the revenues the Postal Service receives for transporting inbound mail by air to its destination. Transit fees are the revenues the Postal Service earns for forwarding mail from one foreign country to another.

(3) The Development of Attributable Costs for the Standard Services based on the PRC Costing Methodology

There are six generalized components for international mail costs: (1) mail processing; (2) delivery (in-office and street), (3) domestic transportation; (4) international transportation; (5) settlement charges; and, (6) "all other" costs (primarily costs that piggyback on the directly variable costs). This categorization accounts for all cost elements in the Domestic Cost Segments and Components Report and the Domestic CRA, which has a line item for international mail.

Outbound services incur domestic mail processing, domestic transportation, international transportation, terminal dues (the cost of delivery in the destination foreign country), and applicable "all other" costs. Outbound services do not incur domestic delivery costs. Inbound mail incurs domestic mail processing, domestic transportation,

delivery, and applicable **all** other costs. Inbound mail does not incur settlement charges or international transportation costs.

Mail Processing Costs. Mail processing costs are based on Management Operating Data System (MODS) activity costs and In-Office Cost System (IOCS) distribution keys. The MODS system organizes mail processing costs into specific activity pools for which there are corresponding IOCS distribution keys. The distribution keys are used to allocate the MODS activity costs to each international service. In the ICRA, PRC Version, the Postal Service applied the cost variability factors utilized in the Commission's most recent recommended decision (Docket No. R97-1). In Docket No. R97-1, the Commission concluded that the variability factor for mail processing cost should be 100 percent. Differences in variability estimates and distribution keys distinguish the Commission's costing methodology from the Service's. For ease of presentation, the ICRA includes some costs under the heading "process" that are not traditionally incorporated there. These costs include all the costs of supervision (Cost Segment 2) and the remaining clerk and mailhandler cost that is not related to mail processing (Cost Segment 3).

Delivery Costs. The **in-office** carrier costs and street costs (city and rural) also follow the Commission's recommended costing procedure. The Commission's approach includes volume variable cost and the incremental cost that arises when only one subclass of mail is delivered to a business or residence. In contrast, the Postal Service prefers to assign only the volume variable cost.

Domestic *Transportation* Cost. Both inbound and outbound mail incur domestic transportation costs. These costs come from the applicable expense categories in the Book of Accounts. Source 1, p. 2-1. The Service's transportation cost system, TRACS, is used to develop distribution keys to distribute the Book of Accounts' expenses among the domestic subclasses and the international mail services. TRACS collects volumetric data on both outbound and inbound mail in sufficient detail for most expense categories. See Source 6. Where the volumetric data are insufficient for the distribution of

attributable cost to international mail categories, the Service develops a distribution key using data from the SIRV/O and the SIRV/I in combination with the density data (pounds per cubic foot) underlying the Domestic RPW report. In these instances, the ultimate distribution key is cubic feet of mail. Source 1, p. 2-1.

According to the Postal Service, with the exception of Canada, sample size limitations prevent it from obtaining reliable figures by which attributable domestic transportation costs can be separated by foreign origin or destination countries. Source 1, p. 2-1. Thus, there is no breakdown of domestic transportation cost by country or country group.

The Postal Service also determined that, with respect to Express Mail and Global Priority Mail, the TRACS system had sampling limitations related to TRACS Passenger, the Eagle network, and the Western network, all of which handle expedited mail. Accordingly, the Service used information from SIRV/O and RPW to distribute the costs among the appropriate categories. Source 1, pp. 2-2 and 2-3. The Postal Service believes this approach provides more accurate reporting and reflects the similarity in transportation costs between International Express Mail and Global Priority Mail. Source 1, p. 2-2.

International Transportation Cost. The costs for transporting mail from U.S. Postal Service dispatching points to foreign countries are kept in the Book of Accounts and apply only to outbound mail. Source 1, p. 4-1. The International Accounts Branch (IAB) maintains international transportation costs and kilograms by country. According to the Postal Service, it develops cost by mail category and country groupings in four steps. First, using the IAB data, the Service develops unit cost (*i.e.*, cost per kilogram) by country and mail category. Second, unit costs are multiplied by category volumes for each country to develop total cost. Third, country totals are grouped into the appropriate rate groupings, as applicable. Fourth, the group totals are adjusted to match the book of account totals. Source 1, p. 4-1.

Highway costs for Canada and Mexico are developed separately using analogous domestic unit costs. The Service also uses assumptions concerning the proportion of mail destined to Canada and Mexico. The Service assumes that for mail to Canada, 75 percent of the surface mail and 10 percent of airmail moves by highway. For Mexico, it assumes that 100 percent of surface mail and 0 (zero) percent of airmail moves by highway. Source 1, p. 4-4.

Settlement Costs. Settlement costs apply only to outbound mail. The costs represent payments to foreign countries for delivering U.S. Mail. The settlement charges for LC/AO mail are referred to as *terminal dues*. For parcel post, the term is *inward /and* charge. For Express Mail, the term is *imbalance charge*. For air LC/AO and air parcel post, there is an additional charge referred to as *&conveyance dues*. This charge applies to mail receiving air transportation in the destination country. There is also a transit fee that applies to mail originating in one country and moving through a second country for destination in a third country. Source 1, pp. 5-1 and 5-2.

U.S. outbound LC/AO mail is subject to three terminal dues regimes: (1) UPU countries, (2) EURB, and (3) Canada. The EURB terminal dues rates have per-piece and per-kilogram elements. The UPU rate is a per-kilogram rate. The Canadian rates are shape based. Source 1, 5-3.

Inward land charges, air conveyance dues and transit rates for parcel post vary by country and are independent of UPU and EURB groupings. The rates are on a per-piece and per-kilogram basis. The UPU specifies the allowable charges for Air conveyance dues and transit fees for LC/AO mail. Source 1, 5-2, 5-3 and 5-9.

EMS imbalance charges also vary by country. Some of the rates are reciprocal, i.e., the U.S. Postal Service pays the foreign postal administration the same rate the foreign postal administration pays to it. The reciprocal rates for some countries reflect a two-tier system that differentiates between documents and merchandise. According to the Postal Service, this distinction corresponds to customs arrangements. The two-tier system also applies in some countries where private couriers, rather than the Postal

Administration, deliver EMS. The remainder of imbalance charges vary widely by country. Source 1, p. 5-4.

The Service's methodology for computing settlement charges requires the outbound volumes by country, mail category (LC/AO, Parcel Post, and EMS), transportation mode, the applicable settlement charge, and the appropriate exchange rate. Multiplying the volumes for each country by the applicable settlement charge and exchange rate yields settlement cost. Source 1, pp. 5-1 and 5-2. Except for EMS, the outbound volume data are obtained from the SIRV/O. They not only support the calculation of settlement costs, but are also used for calculating international transportation costs discussed earlier, Source 1, p. 5-1 and 5-4.

Settlement costs, calculated as described above, are imputed costs. The Postal Service does not attempt to reconcile the imputed cost to the Book of Accounts cost because the accounting procedures are not well suited to the task. Source 1, p. 5-1. In FY 1998, the total booked settlement cost amounted to \$547,738.5 (000); while the imputed costs amounted to \$477,496.7 (000). Thus, the booked costs exceeded the imputed costs by \$70,242 (000). In a response to a Commission inquiry, the Postal Service stated that the imputed costs are based on FY 1998 volumes and reflect the different conversion rates in effect for calendar years 1997 and 1998. In contrast, the booked costs reflect five items that are not the result of FY 1998 volumes or rates: (1) prior year adjustments; (2) a fixed conversion rate; (3) the difference between the fixed conversion rate and the current rate is assigned to general ledger accounts; (4) some settlement payments are provisional; and (5) accruals are conservative to avoid underestimating expenses. For these reasons, the Postal Service treats these costs as incremental to all international mail as whole.' Source 7, Response to Item 10. This will be discussed further below.

² On June 7, 1999, the Postal Service submitted a new FY 1998 ICRA Report - Postal Service Version. The report contained a revised methodology for calculating international transportation cost and a different treatment of the difference between imputed settlement charges and the settlement charges in the book of accounts. Because of time constraints, the Commission has not been able to evaluate the

“All Other” Costs. “All other” costs include all attributable costs not included above. These are mostly cost items that both the Service and the Commission treat as varying in proportion to directly variable cost. These costs include the costs of some lower level regional and headquarters administration, rents, fuels, utilities, supplies and services, and other support costs. There are also supervisor costs and clerk and mailhandler costs for window service and administrative support included here.

(4) The Development of Attributable Costs for the Initiatives

The cost allocations for International initiatives, with the exception of GPM, are derived from data gathered outside of the Postal Service’s main data collection systems. The Postal Service has indicated that the initiatives are seldom observed in the data collection systems used for the higher-volume international mail products. This section describes the Postal Service’s costing methodology for each of the initiatives.

Global Package Link. The GPL model used by the Postal Service to track cost and revenue information consists of a series of linked spreadsheets. The model was developed to determine the institutional cost contribution of GPL. Calculating GPL’s contribution requires calculation of the product’s attributable cost for each postal accounting period (AP) using existing sources of data for GPL revenue, pieces, and weight. Source 10, p. 275.

Costs are allocated to GPL based on an engineering approach. Each step “involved in processing, transporting and delivering mail is mapped out. Each step is classified as variable with piece, with volume, or with some other criterion, or fixed with respect to volume. Then, costs for each step are summed.” Source 3, Response to Item 9. The attributable cost components included in the GPL model are: verification labor, domestic shipping, processing labor, facilities and equipment, international

classified as variable with piece, with volume, or with some other criterion, or fixed with respect to volume. Then, costs for each step are summed.” Source 3, Response to Item 9. The attributable cost components included in the GPL model are: verification labor, domestic shipping, processing labor, facilities and equipment, international transportation, international settlement, IBU contractors, IBU administrative, and other charges and expenses. Excluded costs are institutional costs not attributable to specific postal products. These include headquarters general and administrative expenses. Source 10, p. 275.

The model uses volume data from the Postal Service’s Revenue, Pieces, and Weights system. Costs are manually input, based on reports from Postmasters at the facilities where GPL is processed. Source 10, p. 282. “Customer verification rate is the average hours spent per shipment verifying GPL.” Source 3, Response to Item 7. Contract highway service costs are obtained by contacting postmasters or GPL account representatives. Domestic shipping rates are per minute costs for vehicle service drivers and per mile costs for contract highway routes that are not dedicated to GPL. These costs are determined by separate analyses. International transportation rates are calculated in the GPL model using the highest international airmail rates for Express GPL and the Surface Airlift Rates for Standard and Economy GPL. Source 3, Response to Item 7.

In addition to the volume variable cost, the Postal Service also included product-specific costs in the amount of . These expenses are causally related to GPL, but do not vary with marginal volume changes. They include advertising and promotional activities and other related business expenses. Source 7, Response to Item 9.

Global Priority Mail. GPM costs are estimated “by using In Office **Cost** System (IOCS) tallies, domestic transportation information and other elements of the process used for most other categories of international mail, including the identification of product-specific costs.” Source 3, Response to Item 9. As in the case of GPL, there

TABLE C-3

GLOBAL DIRECT MAIL

Category	Revenue \$(000)	cost \$(000)	Contribution \$(000)	Pieces (000)	Weight (lbs) (000)
Outbound (US Origin)					
Inbound (Foreign Origin)					
Total					

Source: Source 11, Response to Item 1.

The volume is predominantly outbound mail. The small numbers in the inbound entries in Table C-3 illustrate the difficulty of using the Postal Service's major data collection systems for tracking the costs of initiatives.

Global Parcel Services. The GPS volume and revenue report is in a database maintained by the International Accounting Branch (IAB). The dispatch data are entered daily and the accounting period report is based on this information. Specific revenue data are taken from the Financial Accounting Cost Tracking System (FACTS). The data are sent from International Finance to the IAB on an accounting period basis. Source 1, p. 9-l.

Costs for GPS are determined by using a proxy. The volume characteristics of GPS are applied, on an accounting period basis, to the unit cost for Domestic Priority Mail as identified in the 1997 Cost and Revenue Analysis (CRA) report for costs excluding transportation. For transportation, calculations are based on a unit cost, and adjusted for the difference in the weight per piece ratio between Domestic Priority and GPS. Source 1, p. 9-5.

International Customized Mail. In FY 1998, ICM service offered access to five existing services: ISAL, IPAS, EMS, ValuePost, and Air/Surface Parcel Post on terms adapted to specific customers. Generally, the costs associated with service specific ICM customers are developed using the average costs of the applicable service (ISAL,

etc.) for settlement costs, international transportation charges, and processing costs. In some cases, only an acceptance cost is used rather than full processing costs to reflect the specific operations of the particular **ICM** service. Source 1, p. 9-3 and 9-4.

The lone exception to this methodology is the cost incurred by **ICM** customers that use the Postal Service's Air or Surface Parcel Post. For these customers, the Postal Service develops costs using the cost coverage for the standard Air and Surface Parcel Post categories. Source 1, p. 9-4.

(5) international Mail Service Incremental Costs

The Postal Service has included costs that it views as incremental to International Mail as whole. The cost has two components. The first component reflects the difference in settlement charges between imputed costs used in the **ICRA** as attributable settlement cost and the booked cost in the system of accounts. This cost amounted to \$52,203 (000) in FY 1998 and was discussed in the earlier section on the development of settlement cost. The second component reflects expenses for the **IBU** that amounted to \$70,242 (000) in FY 1998. **ICRA** Report, p. A-1, footnote 1. The reported amount includes the salaries and benefits for **IBU** personnel, supplies and services, rents, utilities, and other related expenses. Source 3, Response to Item 4. Together, these expenses amount to \$122,445 (000).

These costs cannot be causally related to specific international mail services on the basis of current information, but can be causally related to international services as a whole.

DERIVATION OF APPROXIMATIONS
FOR ATTRIBUTABLE COST PER PIECE (ACP)
AND ITS COEFFICIENT OF VARIATION (CV)

The Attributable Cost per Piece (ACP) for a domestic subclass or international category of mail is derived by the United States Postal Service (USPS) for its annual Cost and Revenue Analysis (CRA) and International CRA (ICRA) reports using a formula that combines in a nonlinear way estimates of volume-variabilities, distribution key shares and mail volumes produced by a number of postal data systems and special econometric studies. In most Postal Service material ACP is referred to **as** Unit Volume-Variable Cost (UVC). Individually, the coefficients of variability for these estimates (the standard deviation of the error of the estimate divided by the estimate) are often a product of the sampling process or econometric fit that produced the estimate and are known to USPS. Furthermore, there is little interdependence between USPS data systems and/or special studies so the errors that arise in estimates of volume-variabilities, distribution key shares and mail volumes, as they appear in the formula for a single subclass or category, can be expected to be uncorrelated and approximately normally distributed. In the absence of non-sampling errors, the expected value or mean of the errors will also be zero. These assumptions are nearly identical to the assumptions made by the study team in the recently concluded study of the quality of several principal USPS data systems.

The purpose of this Technical Appendix is to derive and to apply formulas to calculate accurate approximate values for expected ACP and its coefficient of variation (CV) under these assumptions and using no more information than the estimates of volume variability, distribution key shares, and mail volumes, and the estimates of the **CVs** of these variables, as provided by USPS. The formulas are approximations for five reasons. First, the derivation uses a second-order Taylor series expansion of the formula for ACP; thus the effect of third and higher-order terms in the Taylor series is presumed to be negligible. Second, virtually all of the errors in the estimates found in the formula for AGP are lower-bounded; however, the normal distribution is not. Consequently, the

normal distribution is only an approximate description of the error-generating process, although the approximation should be very good for variables with moderate CVs (0.5 or less). Third, the assumption that the errors in the estimates of the variables found in the formula are independently distributed is too heroic. There are some connections between USPS data systems and special studies that could produce correlations between the errors. However, there exist no estimates of these correlations that could be used in approximations derived under the assumption that the correlations are known. Fourth, the derived approximation for the CV of ACP contains terms that are very small and have no appreciable effect on the approximations. These terms can be ignored as a practical matter in applying the approximation formula. Fifth, the derivations assume that there are no non-sampling errors in USPS estimates of volume-variabilities, distribution key shares and mail volumes, although it is widely suspected that unknown non-sampling errors exist. Fortunately, non-sampling errors in the form of additive biases will have little effect on the approximations. If the amounts of the biases become known, they can be simply subtracted to correct the estimates with little effect on the calculated CVs. In effect, there is little interaction in the approximations between simple biases and the CV of ACP when non-sampling errors are discovered and corrected.

The derivation proceeds, first, for a general function $y = F(x)$ having continuous first- and second-order partial derivatives with respect to the elements x_i of the vector of variables x . An estimate \hat{x} of x is assumed to have been obtained such that the errors $e_i = x_i - \hat{x}_i$ are normally distributed and independent random variables with zero means. The derivation makes use of the following expected values for independent normal errors with zero means:

1. $E[e_i] = 0$ Zero mean (no bias in \hat{x}_i).
2. $E[e_i^2] = \sigma_i^2$ Variance of e_i .
3. $E[e_i e_j] = 0$ for all $i \neq j$ independent errors

4. $E[e_i e_j] = 0$ for any expression $e_i \dots e_j$ in which one or more of the errors appears alone unsquared, e.g., $E[e_i] = 0$ and $E[e_1 e_2] = 0, E[e_1^2 e_2] = 0, E[e_1 e_2^3] = 0$.
5. $E[e_i^2 e_j^2] = \sigma_i^2 \sigma_j^2$ if $i \neq j$. Also because of independent errors.
6. $E[e_i^3] = 0$ Third moment about the mean of the normal distribution.
7. $E[e_i^4] = 3\sigma_i^4$ Fourth moment above the mean of the normal distribution.

Only 6 and 7 make use of the normality assumption and 6 is also true for any symmetric distribution.

The second-order Taylor series expansion of the function $y = F(x)$ is taken around $\hat{y} = F(\hat{x})$: $y = \hat{y} + \sum_i F_i e_i + \sum_i \sum_j F_{ij} e_i e_j / 2$ where $F_i = \partial F / \partial x_i$ and $F_{ij} = \partial^2 F / \partial x_i \partial x_j$. All partial derivatives are evaluated at $x = \hat{x}$.

The expected value of y is obtained by taking the expected value of its components. $E[y] = \hat{y} + \sum_i F_i E[e_i] + \sum_i \sum_j F_{ij} E[e_i e_j] / 2$. The term $\sum_i F_i E[e_i] = 0$ because $E[e_i] = 0$ (1). All of the terms in the double summation for which $i \neq j$ also vanish because $E[e_i e_j] = 0$ for $i \neq j$ (3). In the remaining terms $\sum_i F_{ii} E[e_i^2] / 2$, substitute $E[e_i^2] = \sigma_i^2$ (2)

$$8. \quad E[y] = \hat{y} + \sum_i F_{ii} \sigma_i^2 / 2$$

This expression (8) reveals that \hat{y} is likely to be a biased estimate of y unless the function $F(x)$ is linear or in the unlikely circumstance that there are exactly affecting terms in the expression $\sum_i F_{ii} \sigma_i^2$.

The CV of y is defined as: $C_y = \sqrt{E[(y - E[y])^2]} / E[y]$. This definition uses $E[y]$ rather than the biased estimate \hat{y} to normalize the standard deviation of the error

$y - E[y]$, which is also measured from $E[y]$ rather than \hat{y} . Therefore, the approximation for C_y derived here requires a bias correction to obtain $E[y]$ from \hat{y} as shown in (8).

The error $y - E[y]$ is approximated by combining the Taylor series for $y = F[x]$ and the result obtained for $E[y]$: $y - E[y] = \sum_i F_i e_i + \sum_i \sum_j F_{ij} e_i e_j / 2 - \sum_i F_{ii} \sigma_i^2 / 2$.

$E[(y - E[y])^2]$ is the variance of the error in the bias-corrected estimate $E[y]$ of y . Substituting for $y - E[y]$ and squaring the resulting expression produces:

$$\begin{aligned} E[(y - E[y])^2] &= E[(\sum_i F_i e_i)^2 + (\sum_i F_i e_i)(\sum_i \sum_j F_{ij} e_i e_j) \\ &\quad - (\sum_i F_i e_i)(\sum_i F_{ii} \sigma_i^2) + (\sum_i \sum_j F_{ij} e_i e_j)^2 / 4 \\ &\quad - (\sum_i \sum_j F_{ij} e_i e_j)(\sum_i F_{ii} \sigma_i^2) / 2 + (\sum_i F_{ii} \sigma_i^2)^2 / 4]. \end{aligned}$$

The expression is reduced by evaluating the expected value of each component using 1-7 above and then combining the results.

$$\begin{aligned} E[(\sum_i F_i e_i)^2] &= \sum_i \sum_j F_i F_j E[e_i e_j] \\ &= \sum_i F_i^2 \sigma_i^2 \text{ because } E[e_i^2] = \sigma_i^2 \text{ (2) and} \\ &\quad E[e_i e_j] = 0 \text{ for all } i \neq j \text{ (3)}. \end{aligned}$$

$E[(\sum_i F_i e_i)(\sum_i \sum_j F_{ij} e_i e_j)] = \sum_h \sum_i \sum_j F_h F_{ij} E[e_h e_i e_j] = 0$ because any expectation of the product of three errors $e_h e_i e_j$ either involves at least one unsquared e , alone (4) or is e_i^3 . $E[e_i^3] = 0$ by (6).

$$\begin{aligned} E[(\sum_i F_i e_i)(\sum_i F_{ii} \sigma_i^2)] &= (\sum_i F_{ii}) \sum_i F_i E[e_i] = 0 \text{ because } E[e_i] = 0 \text{ (1)}. \\ E[(\sum_i \sum_j F_{ij} e_i e_j)^2] &= E[\sum_h \sum_i \sum_j \sum_k F_{hi} F_{jk} e_i e_j e_k] \\ &= E[\sum_i F_{ii}^2 e_i^4] + E[\sum_i \sum_{j \neq i} (F_{ii} F_{jj} + 2F_{ij}^2) e_i^2 e_j^2] \end{aligned}$$

+ $E[\text{terms } e_h e_j e_k \text{ with one unsquared } e, \text{ alone}]$

$$= \sum_i F_{ii}^2 E[e_i^4] + \sum_i \sum_{j \neq i} (F_{ii} F_{jj} + 2F_{ij}) E[e_i^2 e_j^2]$$
 because expected

values of products with one e_i term all are zero (4).

$$= \sum_i 3F_{ii}^2 \sigma_i^4 + \sum_i \sum_{j \neq i} (F_{ii} F_{jj} + 2F_{ij}) \sigma_i^2 \sigma_j^2$$
 because $E[e_i^4] = 3\sigma_i^4$ (7)

and $E[e_i^2 e_j^2] = \sigma_i^2 \sigma_j^2$ when $i \neq j$ (5).

$$= \sum_i \sum_j (F_{ii} F_{jj} + 2F_{ij}) \sigma_i^2 \sigma_j^2$$

$$E[(\sum_i \sum_j F_{ij} e_i e_j)(\sum_i F_{ii} \sigma_i^2)] = (\sum_i F_{ii} \sigma_i^2) \sum_i \sum_j F_{ij} E[e_i e_j]$$

$$= (\sum_i F_{ii} \sigma_i^2)^2$$
 because $E[e_i^2] = \sigma_i^2$ (2) and

$$E[e_i e_j] = 0 \text{ for } i \neq j \text{ (3)}.$$

Recombining the components $E[(y - E[y])^2] = \sum_i F_i^2 \sigma_i^2 + \sum_i \sum_j (F_{ii} F_{jj} + 2F_{ij}^2) \sigma_i^2 \sigma_j^2 / 4$

$$- (\sum_i F_{ii} \sigma_i^2)^2 / 2 + (\sum_i F_{ii} \sigma_i^2)^2 / 4$$

$$= \sum_i F_i^2 \sigma_i^2 + \sum_i \sum_j F_{ij}^2 \sigma_i^2 \sigma_j^2 / 2$$
 because

$$\sum_i \sum_j F_{ii} F_{jj} \sigma_i^2 \sigma_j^2 = (\sum_i F_{ii} \sigma_i^2)^2.$$

Therefore, the CV of y is found from the approximation formula.

$$9. \quad C_y = \frac{\sqrt{\sum_i F_i^2 \sigma_i^2 + \sum_i \sum_j F_{ij}^2 \sigma_i^2 \sigma_j^2 / 2}}{\hat{y} + \sum_i F_{ii}^2 \sigma_i^2 / 2}$$

In practical applications the term $\sum_i \sum_j F_{ij}^2 \sigma_i^2 \sigma_j^2 / 2$ is frequently small and can be

ignored without materially affecting the accuracy of the calculated value of C_y . The term

$\sum_i F_{ii}^2 \sigma_i^2 / 2$ in the denominator may also be small enough to be ignored in many

applications. In other words, the bias correction to \hat{y} may sometimes be omitted without materially affecting the results.

Applying (8) and (9) to ACP is straightforward. The formula used by USPS to compute ACP for the CRA and ICRA is:

$$u = \sum_j T_j E_j d_j / V \quad \text{ACP of a single subclass/category}$$

The summation is taken over all cost pools j . T_j denotes the annual total cost in pool j and is assumed to be known certainly from USPS financial accounts. The other terms in the formula are either assumed values or are estimated in one way or another. These terms are: E_j , the volume variability of costs in pool j ; d_j , the distribution key share for the subclass in pool j ; and, V , mail volume for the subclass.

The CRA or ICRA estimate of u is:

$$\hat{u} = \sum_j T_j \hat{E}_j \hat{d}_j / \hat{V}$$

The \hat{E}_j , \hat{d}_j and \hat{V} are all assumed to be unbiased estimates of the E_j , d_j and V with errors that are independent and normally distributed. The CVs are defined as

$C_{Ej} = \sigma_{Ej} / \hat{E}_j$, $C_{dj} = \sigma_{dj} / \hat{d}_j$ and $C_v = \sigma_v / \hat{V}$. Estimates of these CVs are assumed to be

available. It simplifies the notation somewhat to define \hat{u}_j as the j th component of the

summation that produces \hat{u} , i.e., $\hat{u}_j = T_j \hat{E}_j \hat{d}_j / \hat{V}$

The partial derivatives of u , evaluated at $E_j = \hat{E}_j$, $d_j = \hat{d}_j$ and $V = \hat{V}$ are:

$$\frac{\partial u}{\partial E_j} = \frac{\hat{u}_j}{\hat{E}_j}, \quad \frac{\partial u}{\partial d_j} = \frac{\hat{u}_j}{\hat{d}_j}, \quad \frac{\partial u}{\partial V} = -\frac{\hat{u}}{\hat{V}}, \quad \frac{\partial^2 u}{\partial E_j^2} = \frac{\partial^2 u}{\partial E_j \partial d_j} = \frac{\partial^2 u}{\partial d_j^2} = 0$$

$$\frac{\partial^2 u}{\partial V^2} = \frac{\partial \hat{u}}{\hat{V}^2}, \quad \frac{\partial^2 u}{\partial V \partial E_j} = -\frac{\hat{u}_j}{\hat{E}_j \hat{V}}, \quad \frac{\partial^2 u}{\partial V \partial d_j} = -\frac{\hat{u}}{\hat{d}_j \hat{V}}$$

Inserting partial derivatives in equation 8 provides an approximation for $E[u]$, the expected value of ACP:

$$E[u] = \hat{u} + \frac{2\hat{u}}{\hat{V}^2} \frac{\sigma_v^2}{2}$$

$$E[u] = \hat{u}(1 + C_v^2) \text{ since } \sigma_v^2 / \hat{V}^2 = C_v^2.$$

10. As a proportion: $E[u]/\hat{u} = 1 + C_v^2$.

This shows that the **CRA** and **ICRA** estimates of ACP are biased downwards by an amount that is related to the square of the **CVs** of the volume estimates. In most instances, this bias is small since the **CVs** of the volume estimates are close to zero.

Inserting partial derivatives in equation 9 provides the estimate of the CV of u , denoted C_u .

$$C_u = \frac{\sqrt{\sum_j \left(\frac{\hat{u}_j}{\hat{E}_j} \right)^2 \sigma_{E_j}^2 + \sum_j \left(\frac{\hat{u}_j}{\hat{d}_j} \right)^2 \sigma_{d_j}^2 + \left(\frac{\hat{u}}{\hat{V}} \right)^2 \sigma_v^2 + \left(\frac{2\hat{u}}{\hat{V}^2} \right)^2 \frac{\sigma_v^4}{2} - 2 \sum_j \left(\frac{\hat{u}}{\hat{E}_j \hat{V}} \right)^2 \frac{\sigma_{E_j}^2 \sigma_v^2}{2} - 2 \sum_j \left(\frac{\hat{u}_j}{\hat{d}_j \hat{V}} \right)^2 \frac{\sigma_{d_j}^2 \sigma_v^2}{2}}{\hat{u}(1 + C_v^2)}$$

$$C_u = \frac{\sqrt{\sum_j \hat{u}_j^2 (C_{E_j}^2 + C_{d_j}^2) + \hat{u}^2 C_v^2 + 2\hat{u}^2 C_v^4 - \sum_j \hat{u}_j^2 C_v^2 (C_{E_j}^2 + C_{d_j}^2)}}{\hat{u}(1 + C_v^2)}$$

11.
$$C_u = \frac{\sqrt{\sum_j (\hat{u}_j / \hat{u})^2 (C_{E_j}^2 + C_{d_j}^2) + C_v^2 + [2C_v^4 - \sum_j (\hat{u}_j / \hat{u})^2 C_v^2 (C_{E_j}^2 + C_{d_j}^2)]}}{(1 + C_v^2)}$$

The term in the brackets [] under the square-root sign can be ignored without materially affecting the calculated value of C_u since the terms C_v^4 and $C_v^2(C_{E_j}^2 + C_{d_j}^2)$ are all quite small and enter the formula in a way that tends to be offsetting. Therefore, the approximating formula for C_u can be reduced with no appreciable loss in accuracy to the much simpler expression:

$$12. \quad C_u = \frac{\sqrt{\sum_j (\hat{u}_j / \hat{u})^2 (C_{E_j}^2 + C_{d_j}^2) + C_v^2}}{1 + C_v^2}$$

This is the formula that has been used to calculate the CVs for International Mail.

Finally, consider the possibility that a non-sampling error is discovered in the form of an additive bias β_i in one of the components \hat{x}_i of \hat{x}_j , that is $\hat{x}_i = E[x_i] + \beta_i$. It can easily be shown that if one simply corrects the bias by replacing \hat{x}_i with $\hat{x}_i - \beta_i$ when \hat{y} and all of the partial derivatives F_i and F_j are computed, then the mathematics used to derive $E[y]$ (8) and C_y (9) continues to be valid. Although the use of \hat{x}_i rather than $\hat{x}_i - \beta_i$ will provide biased estimates of $E[y]$ and C_y , correcting for the bias requires no essential change in the application of formulas 8, 9, 10, 11 or 12.

Note also that correcting an additive bias in an \hat{E}_j , \hat{d}_j or \hat{V} is not likely to have much of an impact on a C_u calculated according to formula 12. The bias correction affects C_u , primarily by changing the ratios (\hat{u}_j / \hat{u}) and thus reweighting the summation of terms in $\sum_j (\hat{u}_j / \hat{u})^2 (C_{E_j}^2 + C_{d_j}^2)$. The CV of the biased variable would also change from σ_i / \hat{x}_i to $\sigma_i / (\hat{x}_i - \beta_i)$. Except for a bias in the volume estimate \hat{V} and its effect on C_u , such a change would probably have only a small impact on C_u .

The Postal Service has never proposed a method for computing the overall CVs for the ACPs it annually estimates for domestic and international mail in the CRA and ICRA reports. However, it appears that the Service retains sufficient information about the CVs of the components of its ACP formula to make possible either a simulation or an approximate calculation of the overall CVs using (12). A calculation or simulation of the

CVs of ACP would be a helpful addition to the Service's annual CRA and ICRA reports and would be useful to the Commission and others if supplied by the Postal Service in its submissions for rate proceedings.

Table ^ displays approximate values of the CVs for the ACPs of the major categories of inbound and outbound international Mail. The calculated values depend upon Unit Volume-Variable Costs (UVVCs), volumes and other information provided by the Postal Service in "International Cost and Revenue Analysis (ICRA) Report – PRC Version Fiscal Year 1998", upon CVs for distribution shares and volumes provided in the Service's responses to Commission Orders 1236 and 1244, and upon a small amount of information taken from the 1998 CRA (PRC Version) for domestic mail and the National Consolidated Trial Balance for FY 1998.

Some of the CVs of the variables appearing in equation 12 are missing from the Service's responses to the Commission's information requests. In particular, there are no coefficients of variation for any cost pool volume-variabilities. These volume-variabilities are all assumed to be equal to one and their CVs are assumed to be zero. It is frequently the case that the CVs for distribution key shares and mail volumes are reported for aggregations of more than one category of International Mail, or in other ways that do not exactly match the formula. Also, the cost pool definitions used to report UWC in the ICRA do not exactly match the cost categories for which the Service has reported CVs for the IOCS distribution keys. These and other defects in the data have been overcome by using proxies and by making other assumptions as needed to use whatever data has been supplied. Any differences in the Service's use of UWC in the ICRA and the definition of ACP used by the Commission have been ignored in the application of the approximation formula.

The overall CVs for the fifteen major categories of inbound and outbound **International** mail are shown in Table ^ in the column labeled "CV of ACP" These overall CVs are derived directly from CVs for the various cost components and volume as shown in the other columns of the table. The formula also involves cost proportions. These

proportions, shown as percentages, are derived from the ICRA and appear in Table ^A. Some of the ICRA cost categories have been combined or redistributed for the CV calculations as described below.

The specific assumptions that have been made to overcome the various omissions and defects in the data are as follows:

1. The CVs of the volume-variabilities (E_j) are all taken to be zero. For most cost components, the CRA and ICRA rely upon volume-variabilities with an assumed value of one. This means that the cost component is completely volume-variable. When a volume-variability is an assumed value, its associated CV is zero.
2. Several mail categories have been combined in Table 1 "Estimated IOCS Cost CVs for International Mail Categories, FY 1998" from the Service's response to Commission Orders 1236 and 1244. Where this has occurred the same CVs have been used for the components. Inbound Surface and Air LC/AO both use the CVs reported for Inbound LC/AO; Inbound Surface and Air Parcel Post both use the CVs for Inbound Parcel Post. Outbound Surface Publishers Periodicals use the CVs for Outbound Surface AO. The CVs for Outbound Global Priority Mail have been assumed to apply to all outbound international priority mail.
3. The Service was able to supply a CV for mail volume for only one category of inbound international Mail, inbound Air LC/AO. For all other categories of inbound mail the volume CV was assumed to be the same as the volume CV of the corresponding category of outbound mail.
4. A somewhat more aggregate set of mail categories has been used in the Service's Table 2 "TRACS CVs PQ1-4, FY 98" from the Service's response to Commission Orders 1236 and 1244. In addition to the assumptions made above (2) it

was assumed that Post Cards and Postal Cards have the same domestic transportation **CVs** as Letters and Letter Packages.

5. The Postal Service provided **CVs** for Clerks and Mailhandlers broken down by Mail Processing, Administrative, and Window Service. These were recombined into a single CV for Clerks and Mailhandlers under the assumption that the three subcategories have independent errors. The formula is:

$$C_p = \sqrt{(P_1C_1)^2 + (P_2C_2)^2 + (P_3C_3)^2}$$

C_p = CV for mail processing

C_1, C_2, C_3 = **CVs** for Clerks and Mailhandlers

(1) Mail Processing, (2) Administrative, and (3) Window Service

P_1, P_2, P_3 = Proportions of costs for Clerks and Mailhandlers

Values for the proportions appearing in the formula were taken from the 1998 **CRA** (PRC Version) "Cost Segments and Components Report, Segment 3". The proportions are .758 for mail processing, .120 for administrative and .122 for window service. The results of applying the formula were used as the **CVs** for the **ICRA** non-transportation cost category "Process."

6. The **ICRA** non-transportation cost category "Delivery" was assumed to have the CV reported by the Postal Service for "City-Carrier In-Office" in Table 1.

7. No **CVs** were reported by the Postal Service that appeared to apply directly to the **ICRA** non-transportation category "Other." In fact, this category is a collection of capital-related and overhead costs that are customarily apportioned in the annual **CRA** by a method called "piggy-backing." That is, they are apportioned in the same way as related labor costs and can be expected to have similar errors. Consequently, they have been redistributed back to the other domestic cost categories in applying the approximation formula. This redistribution follows the proportions in the **ICRA** for Process, Delivery and Domestic Transportation.

8. No CVs were reported directly for any of the non-domestic ICRA cost categories. These categories are "International Transportation," "Terminal Dues," "Transit" and "International Air." However, most of the costs in these categories are charges that are based upon weight. Therefore, these charges were combined and assigned the CV reported by the Postal Service for weight. This assumption may cause a minor violation of the assumption that the errors in the components of ACP are uncorrelated since weight and volume are measured in ways that are sometimes related. Fortunately, the CVs for weight are all quite small so the effect any correlation with volumes should be small.

9. The Postal Service's response to PRC Order No. 1236 provided CVs for eight separate modes of domestic transportation and for each postal quarter of FY 1998. These were combined in two stages into the single set of CVs for Domestic Transportation for 1998 used in the approximation formula. First, the CVs for the four postal quarters were combined by assuming that the CVs were drawn from up to four independent, equal-sized samples with the same mean. Where no CV was reported for a quarter, it was assumed that no sample had been drawn for that quarter. The formula for combining the quarterly CVs under these assumptions is:

$$C_y = \sqrt{(C_1^2 + C_2^2 + C_3^2 + C_4^2) / N}$$

C_y = Annual CV

C_1, C_2, C_3, C_4 = CVs for quarters 1-4

N = The number of quarters for which the Postal Service reported a nonzero CV.

10. The annual CVs for the eight modes of domestic transportation were then combined into a single CV for each international mail category using the assumption that the errors in the distribution key shares for these pools are independent. This assumption is an extension of the assumption of independent errors underlying the derivation of the approximation formula.

$$C_t = \sqrt{\sum_{j=1}^8 (P_j C_j)^2}$$

C_t = CV for all modes of domestic transportation

C_j = CV for domestic transportation mode j

P_j = Proportion of domestic transportation cost attributed to mode j

The formula for combining the eight CVs requires the proportion of total domestic transportation cost for each mode. A single set of proportions was used based upon the cost of all categories of international mail reported in the 1998 CRA Report, The proportion for each mode is the cost attributed to international mail for the mode in the "National Consolidated Trial Balance, FY 1998", Accounting Period 14, Year-to-date. The proportions are: Passenger Air .4810, Highway Intra-SCF .0003, Highway Inter-SCF .0016, Highway Intra-BMC .1605, Highway Inter-BMC .1516, Eagle Network .1429, Passenger Rail .0419, and Western Air .0203.

TABLE D-1
PERCENTAGE DISTRIBUTION OF COSTS BY COST GROUPS

International Mail Category	Mail Processing	Delivery	Other	Domestic Transp.	Int'l Transp.	Terminal Dues	Transit	Int'l Air
Outbound:								
Letters and letter packages								
Postcards, postal cards								
International Priority Airmail								
Air AO								
Air Parcel Post								
Express Mail International Service								
Surface AO								
Surface Publishers Periodicals								
International Surface Airlift								
Surface Parcel Post								
Inbound:								
Surface LC/AO								
Surface Parcel Post								
Air LC/AO								
Express Mail International Service								
Air Parcel Post								

TABLE D-2
PERCENTAGE COEFFICIENTS OF VARIATION BY COST GROUPS 1996

International Mail Category	Mail Processing	Delivery	Domestic Transp.	All Other Int'l costs	Volume	CV of ACP	ACP Coverage	Coverage t-value
Outbound:								
Letters and letter packages	5.29%	70.70%	39.00%	1.04%	2.01%	3.00%		
Postcards, postal cards	13.13%	0.00%	39.00%	1.04%	2.01%	6.00%		
International Priority Airmail	19.27%	95.23%	41.77%	0.00%	0.00%	1.80%		
Air AO	11.40%	0.00%	48.84%	2.00%	2.57%	4.50%		
Air Parcel Post	13.46%	0.00%	38.84%	2.93%	3.20%	5.07%		
Express Mail International Service	18.25%	0.00%	12.67%	0.00%	0.00%	3.20%		
Surface AO	12.33%	0.00%	55.04%	5.64%	6.67%	0.63%		
Surface Publishers Periodicals	12.33%	0.00%	0.00%	0.00%	0.00%	2.60%		
International Surface Airlift	31.80%	0.00%	0.00%	0.00%	0.00%	0.37%		
Surface Parcel Post	11.65%	97.48%	63.61%	3.40%	2.65%	9.42%		
Inbound:								
Surface LC/AO	6.70%	6.55%	36.42%	N/A	6.67%	9.76%		
Surface Parcel Post	17.10%	0.00%	54.92%	N/A	2.65%	21.35%		
Air LC/AO	0.70%	6.55%	38.42%	N/A	2.50%	7.70%		
Express Mail International Service	16.45%	106.90%	16.31%	N/A	0.00%	63.54%		
Air Parcel Post	17.10%	0.00%	54.92%	N/A	3.20%	17.49%		

OUTBOUND REGIONAL DATA

The Postal Service provided volume, cost, and revenue data by terminal dues regime. Although terminal dues apply to only LC/AO mail, the Service provided the terminal dues regime separation for all services. There are three regimes: (1) Canada; (2) European Bilateral Countries; and, (3) UPU countries. Although Mexico is part of the UPU country group, the Postal Service has reported data for it separately.

There is no reporting of the data for the initiatives on a regime basis. Also, the Postal Service cannot separate the cost for ValuePost/Canada between periodicals and all other printed matter; therefore, those costs are included in the data for Surface printed matter.

TABLE E-I (Revised 6111199)
OUTBOUND INTERNATIONAL MAIL
SUMMARY OF FY 1998 INTERNATIONAL VOLUMES, REVENUE,
ATTRIBUTABLE COST AND COST COVERAGE
BY INTERNATIONAL MAIL CATEGORY AND TERMINAL DUES **REGIME 1/**

International Mail Category	Volume (1)	Revenue (\$) (2)	Attributable cost (\$) <u>2/</u> (3)	Contribution (\$) (4)=(2)-(3)	cost Coverage (5)=(2)/(3)
Surface					
Printed Matter and Small Packets (AO), Excluding Periodicals and ISAL					
Canada					
Mexico					
European Bilateral Group	3,972	12,541			
UPU Countries	8,075	29,564			
Periodicals					
Canada					
Mexico					
European Bilateral Group	14,457	16,944			
UPU Countries	27,487	31,802			
Parcel Post					
Canada					
Mexico					
European Bilateral Group	761	16,429			
UPU Countries	1,218	35,521			
International Surface Airlift (ISAL)					
Canada	N/A	N/A			
Mexico					
European Bilateral Group					
UPU Countries					
Valuepost Canada <u>3/</u>					
Total Surface	259,195	\$ 299,803	\$ 310,880	(11,077)	96.4%
Airmail					
Letters and Letter Packages					
Canada					
Mexico					
European Bilateral Group	124,219	128,534			
UPU Countries	189,790	198,477			
Postcards, Postal Cards, & Aerogrammes					
Canada					
Mexico					
European Bilateral Group	33,663	17,237			
UPU Countries	20,382	10,500			

Footnotes and sources are on Table E-I (continued).

TABLE E-I (CONTINUED)
OUTBOUND INTERNATIONAL MAIL
SUMMARY OF FY 1998 INTERNATIONAL VOLUMES, REVENUE,
ATTRIBUTABLE COST AND COST COVERAGE
BY INTERNATIONAL MAIL CATEGORY AND TERMINAL DUES REGIME ^{1/}

International Mail Category	Volume (1)	Revenue (\$) (2)	Attributable cost (\$) ^{2/} (3)	Contribution (\$) (4)=(2)-(3)	cost Coverage (5)=(2)/(3)
Airmail (Continued)					
Printed Matter and Small Packets					
Canada					
Mexico					
European Bilateral Group	11,330	59,877			
UPU Countries	17,911	104,134			
Parcel Post					
Canada					
Mexico					
European Bilateral Group	1,052	35,075			
UPU Countries	1,813	67,926			
International Priority Airmail Service					
Canada	N/A	N/A			
Mexico					
European Bilateral Group					
UPU Countries					
Bulk Letter Service to Canada ^{3/}	-	-	-	-	-
Express Mail International Service					
Canada					
Mexico					
European Bilateral Group	652	20,232			
UPU Countries	2,992	84,628			
Total Air	679,857	\$ 966,686	\$ 633,284	\$ 333,402	152.6%
Initiatives					
Global Priority Mail					
Global Package Link					
International Customized Mail					
Direct entry					
Total Initiatives	33,002	\$ 66,307	\$ 76,356	\$ (10,049)	86.8%
Grand Total Outbound	972,054	\$ 1,332,796	\$ 1,020,520	\$ 312,276	130.6%

^{1/} Mexico is part of the UPU terminal dues regime.

^{2/} Volume variable cost + product-specific cost

^{3/} See Table IV-2 for caveat

Source: FY 1998 ICRA Report, June 11, 1999, Pages A-3, A-4, A-5, A-7 ; Attributable cost for EURB/UPU split from pages B-4 & B-5, unit cost times volume, as applicable

THE POSTAL SERVICE'S REVISED TREATMENT OF INTERNATIONAL AIR TRANSPORTATION COSTS AND THE SETTLEMENT DIFFERENCE

The Postal Service submitted an FY 1998 ICRA Report – USPS Version on June 7, 1999. It reflected a revised methodology for calculating international air transportation costs and a revised treatment for the difference between imputed settlement costs and booked costs (the settlement difference). The change in the treatment of the latter cost only affects the calculation of incremental costs.

Settlement treatment. In the original ICRA submission, the Postal Service treated the settlement difference as an incremental cost of providing international mail service as a whole. In adjusting this treatment the Postal Service emphasized that the settlement difference was the result of a conservative approach to accruing settlement costs. The Postal Service continues to believe that the imputed values represent the cost consequence of current international volumes but it now apparently concludes that the booked values are less accurate measures of settlement costs than the imputed values, and therefore the booked values can be ignored. This treatment eliminates a component of incremental cost and would reduce the total incremental cost for international mail by \$70 million (from \$122 million to \$52 million).

International air transportation costs treatment. In the original ICRA — PRC Version, submitted on March 15, the Postal Service cross-multiplied outbound volumes by unit air transportation costs, based on IA5 cost information, to calculate an imputed value for international air transportation costs. The calculation produces an imputed value because it does not reflect the corresponding value in the Book of Accounts. For this reason, the Postal Service adjusted the imputed value to the level of the Book of Accounts' accrued value for international air transportation cost. Since the Book of Accounts figure was larger than the aggregate imputed value, the adjustment increased the imputed value.

In the Postal Service version filed June 7, 1999, the Postal Service adjusted the imputed value to the level of the actual payments. This is a level between the imputed value and the booked value. The imputed value of payments to carriers and the actual payments to air carriers differ from accrued expenses because international air transportation costs are accrued using the historical level of payments as a basis. Although the imputed value reflects the expected payment to carriers, sometimes the actual payment differs because of adjustments to the bill resulting from a change in routing or other differences. Accordingly, the Postal Service now believes that using the actual payments as the benchmark for the imputed value is the most accurate method for estimating the international air transportation cost of specific international mail services.

Table F-1 calculates the differences in attributable cost, contribution to institutional cost, and cost coverage for the standard services resulting from the revised Postal Service treatment of air transportation costs. Unit attributable costs that incorporate the revised approach are calculated in Table F-2 for the standard services. The corresponding adjustment of the Initiatives' cost is calculated in Table F-3.

Because of time constraints, the Commission did not ask the Postal Service to produce a PRC Version of the ICRA with the Postal Service's revised treatment. However, in Table F-2, the unit cost for standard services reflecting the revised approach was obtained by adjusting the total unit attributable costs from the revised ICRA — PRC Version submitted June 11, 1999, to reflect the Postal Service's revised international air transportation. The June 11 revised ICRA — PRC Version does not incorporate the two methodology changes discussed in this appendix.

Of the initiatives, only GPM was affected by the revised approach. In Table F-3, the attributable costs for GPM are adjusted, based on underlying Postal Service electronic workpapers, to reflect revised international air costs. Tables F-4 and F-5 calculate the effects of the change on attributable costs, contribution to institutional cost, and cost coverage.

TABLE F-1
COMPARISON OF REVENUE, ATTRIBUTABLE COST, CONTRIBUTION TO INSTITUTIONAL COST AND COST COVERAGE
FOR OUTBOUND SURFACE AND AIR INTERNATIONAL MAIL USING PRC METHODOLOGY UNADJUSTED
AND ADJUSTED FOR THE USPS' NEW METHODOLOGY FOR INTERNATIONAL AIR TRANSPORTATION COST
(Amounts in Thousands)

	Revenue (1)	PRC Total Attributable Costs		Contribution to Institutional Costs			Cost Coverage		Percent Change (10)=(9)/(8)-1	
		Unadjusted (2)	Adjusted (3)	Adjusted minus (4)=(3)-(2)	Unadjusted (5)=(1)-(2)	Adjusted (6)=(1)-(3)	Adjusted minus (7)=(6)-(5)	Unadjusted (8)=(1)/(2)		Adjusted (9)=(1)/(3)
OUTBOUND MAIL										
Surface										
1 Printed Matter & Small Packets, excl. SAL & Per.	\$ 57,461	\$	\$	\$	\$	\$			0%	
2 Periodicals	\$ 68,615	\$	\$	\$	\$	\$			0%	
3 Parcel Post	\$ 57,607	\$	\$	\$	\$	\$			0%	
4 Int'l Surface Airlift	\$ 116,120	\$	\$	\$	\$	\$			0%	
5 Value Post/Canada 1/	\$	\$	\$ -	\$	\$ -	\$				
6 Subtotal, Surface AI?	\$ 299,803	\$ 310,880	\$ 310,880	\$	\$ (11,077)	\$ (11,077)	\$	96%	96%	0%
7 Letters and Letter Packages	\$ 451,943	\$	\$	\$	\$	\$			3%	
8 Postcards, Postal Cards, and Aerogrammes	\$ 3,129	\$	\$	\$	\$	\$			2%	
9 Printed Matter and Small Packets (AO)	\$ 194,833	\$	\$	\$	\$	\$			8%	
10 International Priority Air Mail Service	\$ 39,219	\$	\$	\$	\$	\$			10%	
11 Bulk Letter Service to Canada 1/	\$	\$	\$ -	\$	\$ -	\$ -				
12 Parcel Post	\$ 124,029	\$	\$	\$	\$	\$			10%	
13 Express Mail International Service	\$ 125,363	\$	\$	\$	\$	\$			6%	
14 Subtotal, Air	\$ 966,686	\$ 633,284	\$ 598,884	\$ (34,400)	\$ 333,402	\$ 367,602	\$ 34,400	153%	161%	6%
15 Total Surface and Air	\$1,266,489	\$944,164	\$ 909,764	\$ (34,400)	\$ 322,325	\$ 356,725	\$ 34,400	134%	139%	4%

1/ See caveat in Table IV-2, footnote 1

Source: Cols. 1 & 2 from Table IV-2, Col. 2 or 5, as applicable; Col. 3 from Table F-2, Col. 6

TABLE F-2
DEVELOPMENT OF FY 1998 ATTRIBUTABLE COST FOR INTERNATIONAL MAIL USING PRC COSTING METHODOLOGY
WITH USPS REVISED METHODOLOGY FOR CALCULATING INTERNATIONAL TRANSPORTATION COST
(Amounts in Thousands)

U.S. Total		PRC	PRC		Adjusted	Adjusted		Adjusted	Unadjusted
International Mail Category	Volume	Unit Cost	Int'l Tp Unit Cost	Int'l Tp Unit Cost	Unit Cost	Total attrib Cost	Revenue	Cost Coverage	cost Coverage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(7)/(6)	(9)
OUTBOUND MAIL									
Surface									
1 Printed Matter & Small Packets, excl SAL & Per	28,215	\$	\$	\$	\$	\$	\$ 57,461		
2 Periodicals	65,082	\$	\$	\$	\$	\$	\$ 66,615		
3 Parcel Post	2,312	\$	\$	\$	\$	\$	\$ 57,607		
4 Int'l Surface Airlin	163,587	\$	\$	\$	\$	\$	\$ 116,120		
5 ValuePost/Canada 1/		\$	\$	\$					
6 Subtotal, Surface	259,196					\$ 310,880	\$ 299,803	96.4%	96.4%
Air									
7 Letters and Letter Packages	510,053	\$	\$	\$	\$	\$	\$ 451,943		
8 Postcards, Postal Cards, and Aerogrammes	63,010	\$	\$	\$	\$	\$	\$ 31,299		
9 Printed Matter and Small Packets (AO)	45,017	\$	\$	\$	\$	\$	\$ 194,833		
10 International Priority Airmail Service	52,843	\$	\$	\$	\$	\$	\$ 39,219		
11 Bulk Letter Service to Canada 1/						\$	\$		
12 Parcel Post	4,240	\$	\$	\$	\$	\$	\$ 124,029		
13 Express Mail International Service	4,694	\$	\$	\$	\$	\$	\$ 125,363		
14 Subtotal, Air	679,857					\$ 598,884	\$ 966,686	161.4%	152.6%
15 Total Surface and Air	939,053					\$ 909,764	\$ 1,266,489	139.2%	134.1%

1/ See caveat in Table IV-2, footnote 1

Source: Col. 1 from Table IV-4, Cols 2 & 3 from FY 1998 ICRA Report-PRC Version, p. B-1; Col 4 from FY 1998 ICRA Report-USPS Version, p. B-1;

Col. 5 = Col. 2 - Col. 3 + Col. 5; Col. 6 = Col. 1 x Col. 5; Col. 7 from Table IV-2, Col. 9 from Table IV-4

TABLE F-3
DEVELOPMENT OF **ATTRIBUTABLE COST** FOR GLOBAL PRIORITY MAIL
USING THE 6/11/99 ICRA REPORT-PRC VERSION AND THE POSTAL SERVICE'S
NEW METHODOLOGY FOR INTERNATIONAL AIR TRANSPORTATION COST
(Amounts in Thousands)

Cost Segments/Components	Source	PRC	USPS	PRC
		Version (3/15/99) (1)	Version (6/7/99) w/ new Int'l Air Trans Cost (2)	Version (6/11/99) w/ new Int'l Air Trans Cost (3)
1 Total Cost Segment Costs excluding CS 1	Sheet Cost Segment Cell X19	\$	\$	\$
2 Domestic Rail Cost	Sheet Domestic Trans. Cell AV47	\$	\$	\$
3 Domestic Other Transportation Cost	Sheet Domestic Trans. Cell A0183	\$ -	\$ -	\$
4 Domestic Highway Cost	Sheet Domestic Trans. Cell P138	\$	\$	\$
5 Domestic Water Cost	Sheet Domestic Trans. Cell P 227	\$	\$	\$
6 International Air Transportation Cost	Sheet Intl Trans & Adj Cell G217	\$	\$	\$
7 Terminal Dues	Sheet Intl Trans & Adj, Cell L217	\$	\$	\$
8 Transit & Air Conveyance costs	Sheet Intl Trans & Adj, Cell M217	\$	\$	\$
9 Subtotal,	Sum of Lines 1 thru 8	\$	\$	\$
10 Product-Specific Cost	ICRA Report, p A-1	\$	\$	\$
11 Total Attributable Cost	L 10 + L 11	\$	\$	\$
12 Reconciliation Total	ICRA Report, p h-7	\$	\$	\$
13 Reconciliation Difference	L 12-L 11	\$	\$	\$

Note on Sources For USPS, Sheet references are for File ICRAusp3.XLS

For PRC (3/15/99), Sheet references are for File ICRAPRC5.XLS

1/ Line 1 costs are obtained from the international cost segments and components report accompanying the FY1998 ICRA Report-PRC Version. 6/11/99 All other costs come from column 2

TABLE F-4
DEVELOPMENT OF ATTRIBUTABLE COST
FOR OUTBOUND MAIL- STANDARD SERVICE AND INITIATIVES-
ADJUSTED TO REFLECT THE NEW USPS METHOD FOR
INTERNATIONAL AIR TRANSPORTATION COST
(Amounts in Thousands)

Outbound Categories	PRC Version (6111199) (1)	PRC Version (6111199) w/ new Int'l Air Trans Cost (2)	Reduction in Attributable costs (3)=(2)-(1)
1 Standard Services Initiatives	\$ 944,164	\$ 909,764	\$ (34,400)
2 Global Priority Mail	\$	\$	\$
3 Global Package Link	\$	\$	\$
4 Direct Entry/Inbound	\$	\$	\$
5 International Customized Services	\$	\$	\$
6 Subtotal, Initiatives	\$ 76,356	\$ 74,969	\$ (1,387)
7 Total Outbound	\$ 1,020,520	\$ 984,733	\$ (35,787)

Sources:

Line 1-- Table E-I, L 15, Col 2 or Col 3. as applicable

Line 2-- Cal. 1 from Table IV-2, L 15, Col 5.

Col 2 from Table F-3, L. 11, Col. 3

Lines 3, 4, & 5 from Table IV-Z, Col 2, Lines 16, 17, or 18, as applicable

Line 6 = Sum of Lines 2 thru 5.

Line 7 = L 1 + L 6.

TABLE F-5
COMPARISON OF REVENUE, ATTRIBUTABLE COST, CONTRIBUTION TO INSTITUTIONAL COST AND COST COVERAGE
FOR INTERNATIONAL MAIL - STANDARD SERVICES AND INITIATIVES. USING PRC METHODOLOGY UNADJUSTED
AND ADJUSTED FOR THE USPS' NEW METHODOLOGY FOR INTERNATIONAL AIR TRANSPORTATION COST
(Amounts in Thousands)

Outbound Categories	Revenue (1)	Attributable Costs			Contribution to Institutional Cost			Cost Coverage			Percent Change (10)=[(9)/(8)]-1
		PRC Version (6/11/99) (2)	PRC Version (6/11/99) w/ new Int'l Air Trans Cost (3)	Reduction in Attributable Costs (4)=(2)-(3)	PRC Version (6/11/99) w/ new Int'l Air Trans Cost (5)=(1)-(2)	PRC Version (6/11/99) w/ new Int'l Air Trans Cost (6)=(1)-(3)	Increase in Contribution (7)=(6)-(5)	PRC Version (6/11/99) w/ new Int'l Air Trans Cost (8)=(1)/(2)	PRC Version (6/11/99) w/ new Int'l Air Trans Cost (9)=(1)/(3)		
1 Standard Services Initiatives	\$ 1,266,489	\$ 944,164	\$ 909,764	\$ (34,400)	\$ 322,325	\$ 356,725	\$ 34,400	134 %	139 2%	3.8%	
2 Global Priority Mail	\$	\$	\$	\$	\$	\$	\$			3.7%	
3 Global Package Link	\$	\$	\$	\$	\$	\$	\$			0.0%	
4 Direct Entry/Inbound	\$	\$	\$	\$	\$	\$	\$			0.0%	
5 International Customized Service	\$	\$	\$	\$	\$	\$	\$			0.0%	
6 Subtotal, Initiatives	\$ 66,307	\$ 76,300	\$ 74,969	\$ (1,387)	\$ (10,049)	\$ (8,662)	\$ 1,387	86.8%	88.4%	1.8%	
7 Total Outbound	\$ 1,332,796	\$ 1,020,520	\$ 984,733	\$ (35,787)	\$ 312,276	\$ 348,063	\$ 35,767	130.6%	135.3%	3.6%	

Source Col. 1 = Table IV-2, Col. 2, L. 6+L. 14; Col. 2 = Table IV-2, Col. 5, L. 6+L. 14; Col. 3 = Table F-4, Col. 2, as applicable

The effects of these revised unit attributable costs on aggregate and individual international mail services are developed in Tables F-6, F-7, and F-8 of this appendix. In Table F-6, settlement differences in the amount of \$70 million are excluded from the incremental cost in accordance with the Postal Service's revised treatment. The remaining incremental costs are equal to the IBU overhead cost in the amount of \$52 million. Both figures are obtained from the ICRA Report – PRC Version submitted June II, 1999 at page A-I, Footnote 3.

Table F-7 displays the impact of revised attributable air transportation costs on the cost coverages of individual international mail products.

Table F-8 is a summary of FY 1998 revenue and attributable costs for international mail, similar to Table IV-I in the body of this report except that it reflects both the air transportation and settlement cost methodologies now favored by the Postal Service.

TABLE F-6
EFFECT OF USING THE POSTAL SERVICE'S METHOD
FOR CALCULATING INTERNATIONAL AIR TRANSPORTATION
AND SETTLEMENT COSTS
(Amounts in Thousands)

Category	Reduction in Attributable to Cost (\$) (1)	Increase in Contribution to Institutional Cost (\$) (2)	Unadjusted cost Coverage (3)	Adjusted Cost Coverage (4)
Outbound Mail	(35,787)	35,787	130.6%	135.3%
Inbound Mail			98.2%	98.2%
Subtotal	(35,787;	35,787	123.5%	127.0%
Int'l Mail Incrementat Cost		70,242	-	
Grand Total	\$ (35,787)	\$ 106,029	112.9%	122.0%

Source: Line 1 from Appendix F, Table F-5, Line 7; Line 2 = No effect on inbound mail;
Line 4 = Table IV-I, L.4 - Table F-8, L.4. Reflects ICRA Report released 6/11/99.

TABLE F-7
EFFECT OF USING THE POSTAL SERVICE'S METHOD
FOR CALCULATING INTERNATIONAL AIR TRANSPORTATION COSTS
ON INTERNATIONAL ATTRIBUTABLE COST

	Reduction in Attributable cost (\$) (1)	Increase in Contribution to Institutional Cost (\$) (2)	Unadjusted cost Coverage (3)	Adjusted cost Coverage (4)
OUTBOUND MAIL				
Surface				
Printed Matter & Small Packets, excl. ISAL & Per. Periodicals	-			
Parcel Post				
Int'l Surface Airlift				
ValuePost/Canada ^{1/}				-
Subtotal, Surface			96.4%	96.4%
Air				
Letters and Letter Packages				
Postcards, Postal Cards, and Aerogrammes				
Printed Matter and Small Packets (AO)				
international Priority Airmail Service				
Bulk Letter Service to Canada ^{1/}				
Parcel Post				
Express Mail International Service				
Subtotal, Air	\$(34,400)	\$34,400	152.6%	161.4%
Initiatives				
Global Priority Mail				
Global Package Link				
Direct Entry/Inbound				
International Customized Services	-	-		
Subtotal, Initiatives	\$(1,387)	\$1,387	86.8%	88.4%
Total Outbound	\$(35,787)	\$35,707	130.6%	135.3%

^{1/} See caveat in Table IV-2, footnote 1

Source: For surface & air use Appendix F, Table F-1, Cols. 4, 7, 8, 8 9, as applicable; for initiatives, use Appendix F, Table F-5, Cols. 4, 7, 8, & 9, as applicable.

TABLE F-8
SUMMARY OF FY 1998 REVENUE AND **ATTRIBUTABLE COST**
FOR OUTBOUND AND INBOUND INTERNATIONAL MAIL
USING USPS NEW METHOD FOR **ESTIMATING**
INTERNATIONAL AIR TRANSPORTATION COST AND SETTLEMENT COST
(Amounts in Thousands)

Category	Revenue (\$) (1)	Attributable cost (\$) (2)	Incremental Cost (\$) (3)	Total Attributable Cost (\$) (4)	Contribution (\$) (5)=(1)-(2)	cost Coverage (6)=(1)/(4)
Outbound Mail	1,332,796	984,733	-	904,733	348,063	135.3%
Inbound Mail	282,311	287,379	-	287,379	(5,068)	98.2%
Subtotal	1,615,107	1,272,112	-	1,272,112	342,995	127.0%
Int'l Mail Incremental Cost			52,203	52,203	\$ (52,203)	
Grand Total	\$1,615,107	\$1,272,112	\$52,203	\$1,324,315	\$ 290,792	122.0%

Note: The attributable costs reflect the FY 1998 ICRA Report - PRC Version, submitted 6/11/99

Source: Table IV-2, except Line 1, Col.2 = Appendix F, Table F-4, Col.2, L. 7 and Line 4, Col. 3 is from the FY 1998 ICRA Report - PRC Version, June 11, 1999, p.A-1, footnote 3.

REFERENCE MATERIAL – POSTAL SERVICE VIEWS

This appendix provides two Postal Service documents for reference: a chart that relates international domestic services; and the Postal Service description of how it develops international mail rates.

Response to Question 23 of the Second Notice of International Mail Data Requirements, Order No. 1236.

23. For each of the international categories shown in the list of appended to Order No. 1228, please indicate what the Postal Service considers to be the most closely analogous subclass of domestic mail and discuss the reasons for these conclusions.

See the following attachment.

International Outbound Product	Like Domestic Product	Characteristic	Weight	Options	Competition
Letters & Letter Packages (CC)	First-Class Mail	LC contains personal handwritten or typewritten communications having the character of current correspondence and AO which is like First-Class Mail	International ranges from 0 to 4 pounds while domestic goes to 11 ounces.	Domestic has presorted and automation rates while international is only single piece	Domestic has a monopoly while international is under direct competition
International Priority Airmail Service (IPA)	First-Class Mail	Any item of the LC or AO classification can go IPA which is the same as First-Class Mail	International has a 4 pound maximum for LC and an 11 pound maximum when AO is included while domestic goes to 11 ounces	IPA is a bulk service requiring a sort to country and minimum number of pieces while the various levels of presort requirements are more severe	Domestic has a monopoly while international is under direct competition
Bulk Letters to Canada	First-Class Mail	Any letter of the LC or AO classification can go Bulk Letters to Canada which is the same as First-Class Mail	International has a 3 ounce maximum while domestic goes to 11 ounces.	Bulk letters to Canada requires 500 three ounce letters or more and sorted to the provisions in Canada similar to presort at its highest level	Domestic has a monopoly while international is under direct competition
Global Priority Mail (GPM)	First-Class Mail	Any item of the LC or AO classification can go GPM which is the same as First-Class Mail	International ranges from 0 to 4 pounds while domestic goes to 11 ounces	Domestic has presorted and automation rates while international is only single piece	Domestic has a monopoly while international is under direct competition
Postcards & Aerogrammes	Post Cards	same as domestic Postcards	same	same	Domestic has a monopoly while international is under direct competition
Air Other Articles (AO)	Standard A & Periodicals	Contains printed mailer books sheet music, publishers periodicals This mail can not be considered personal correspondence	International this mail can go to 11 pounds while domestic 1 pound Domestic there is a flat rate for the first 3 ounces	International this mail flies while domestic standard A is a surface product which can require deposit at a destination office	Both domestic and international face competition except international is faced with other Posts operating acceptance offices and processing plants in this country accepting and sorting US origin mail going to other countries
Surface Other Articles (AO)	Standard A & Periodicals	same as above	same as above	This mail goes by boat to the destination	same as above

International Outbound Product	Like Domestic Product	Characteristic	Weight	Options	Competition
Letters & Letter Packages (LC)	First-Class Mail	LC contains personal handwritten or typewritten communications having the character of current correspondence and AO which is like First-Class Mail	International ranges from 0 to 4 pounds while domestic goes to 11 ounces.	Domestic has presorted and automation rates while international is only single piece.	Domestic has a monopoly while international is under direct competition
International Priority Airmail Service (IPA)	First-Class Mail	Any item of the LC or AO classification can go IPA which is the same as First-Class Mail	International has a 4 pound maximum for LC and an 11 pound maximum when AO is included while domestic goes to 11 ounces.	IPA is a bulk service requiring a sort to country and minimum number of pieces while the various levels of presort requirements are more severe.	Domestic has a monopoly while international is under direct competition
Bulk Letters to Canada	First-Class Mail	Any letter of the LC or AO classification can go Bulk Letters to Canada which is the same as First-Class Mail	International has a 3 ounce maximum while domestic goes to 11 ounces.	Bulk letters to Canada requires 500 three ounce letters or more and sorted to the providences in Canada similar to presort at its highest level	Domestic has a monopoly while international is under direct competition
Global Priority Mail (GPM)	First-Class Mail	Any item of the LC or AO classification can go GPM which is the same as First-Class Mail	International ranges from 0 to 4 pounds while domestic goes to 11 ounces.	Domestic has presorted and automation rates while international is only single piece.	Domestic has a monopoly while international is under direct competition
Postcards & Aerogrammes	Post Cards	same as domestic Postcards	same	same	Domestic has a monopoly while international is under direct competition
Air Other Articles (AO)	Standard A & Periodicals	Contains printed matter, books, sheet music, publishers periodicals. This mail can not be considered personal correspondence.	International this mail can go to 11 pounds while domestic 1 pound. Domestic there is a flat rate for the first 3 ounces.	International this mail flies while domestic standard A is a surface product which can require deposit at a destinating office.	Both domestic and international face competition except international is faced with other Posts operating acceptance offices and processing plants in this country accepting and sorting to US origin mail going to other countries
Standard A & Periodicals	Standard A & Periodicals	same as above	same as above	This mail goes by boat to the destination	same as above

International Outbound Product	Like Domestic Product	Characteristic	Weight	Options	Competition
International Surface Airlift (ISAL)	Standard A & Periodicals	same as above	same as above	ISAL is airlifted to the destination and then surface	same as above
Valuepost to Canada	Standard A & Periodicals	same as above	International there is a 2 pound weight limit for a piece. You must have 50 pounds of letters of 100 pounds of flats.	This mail is trucked the same as standard A.	same as above
Express Mail	Express Mail	No service guarantee for Express International. Customs is a high difference for international merchandise. A separate agreement with each country is required.	Maximum weights could be different for each country		Competition for parcels is probably about the same
Air Parcel Post	Priority Mail	Customs is an issue. A different delivery rate for each country	Maximum weights could be different for each country		Competition for parcels is probably about the same
Surface Parcel Post	Standard B	Customs is an issue. A different delivery rate for each country	Maximum weights could be different for each country		Competition for parcels is probably about the same
Global Package Link (GPL)	Express Mail & Priority Mail	This product includes special software to provide customs preadvice. There is a large overhead for this. It is restricted to a few countries. A different delivery rate for each country.	Maximum weights could be different for each country		Competition for parcels is probably about the same
International Customized Mail (ICM)	Nothing	These are contract with specific customers going to certain countries with a known product. To qualify you need to have a minimum amount to mail.			
Direct Entry	Nothing	This service uses the domestic rates at the destination country for delivery charges.			
Canada Admail	Nothing	This product is one of the direct entry products.			
International Special Services	Special Services	same as domestic except for requirements within destination country			

Response to Question 18 of the Second Notice of International Mail Data Requirements, Order No. 1236,

18. Please provide the information on rate design described at page 6 of order No. 1228. (See the first full paragraph of page 6.)

Page 6 of PRC Order No. 1228 asks that the Postal Service provide the Commission enough documentation to allow the calculation and reporting of the cost coverage for each subclass of international mail. Material has already been furnished by the Postal Service to allow such calculations to be made by the Commission. In addition, Order No. 1228 also discusses rate design information necessary to demonstrate how the Postal Service designs the rate for each constituent rate category. The information should allow the Commission to determine whether the difference between the category rate and the base rate for the subclass to which it belongs reflects its added or avoided costs. The information below addresses this request.

General

The following discussion outlines the assumptions and approach underlying the development of international rate levels and the structure specific to each international mail class, subclass, and rate category.

Classification of Mail

Mail class is identified according to the nomenclature and definitions described in the Convention Agreements of the Universal Postal Union (UPU). The *International Mail Manual* provides further descriptive information. There are three basic classes of international mail:

<u>Letters & Cards (LC):</u>	Items weighing up to 2 kilograms (64 ounces).
<u>Printed Matter (AO):</u>	Items consisting of printed papers, literature for the blind and small packets. Weight limits are 2 kilograms for small packets, 5 kilograms for printed papers, and 7 kilograms for literature for the blind.
<u>Parcels:</u>	Parcel post is similar to domestic Standard (B) mail. Merchandise is permitted, but written communications having the nature of current and personal correspondence are not permitted.

These three classes of international mail service are also delineated by air and surface modes of transportation where the transportation mode equates roughly to priority and non-priority levels of service.

Within these three classes, subclasses/rate and product categories can be identified. Within the LC class, these include post cards, aerogrammes, Global Priority Mail, international priority airmail and bulk letters to Canada. Within the AO class, regular printed matter, publishers' periodicals, books and sheet music, international surface airtail (ISAL), and Valuepost Canada are defined.

Within parcels, a distinction is made by mode of transportation: namely, surface and air, and by geographic region.

In addition to these three major classes of mail, the Postal Service also offers an expedited service simply named International Express Mail Service.

Basic Principles

The development of international rates conforms to the statutory criteria of 39 U.S.C. 101 and 403. Factors used to develop international mail rates in some respects parallel those used in domestic rate setting; namely, international mail must cover its direct and indirect costs; international mail must make an appropriate contribution to all other costs, and derivation of

international mail rates must consider the environmental conditions of the market it serves. In general, the following principles are followed when setting international mail rates.

1. Outbound rates are based on outbound costs.
2. Costs are estimated in a manner similar to domestic cost estimation.
3. Rate development follows a bottom up approach. Unlike domestic rate development where base rates are reduced by a cost avoidance/cost savings factors, international rates are set by establishing markups and cost coverage targets.
4. Markups are applied to estimates of unit cost.
5. Unit costs are developed by component and identified according to three basic categories: non-transportation, transportation, and settlement charges.
6. Markups are based upon market factors and recognition that all outbound services are subject to competitive forces and substitute services.
7. Rate differences are a function of cost differences and the markups applied to unit costs.

Rate Design

As a brief historical note, it had been the practice, through the February 1985 international change in rates, to configure outbound international postage rates on total combined inbound/outbound international costs. This had the effect of burdening outbound ratepayers with the cost of delivery of foreign-origin inbound international mail. With the suspension of the Private Express Statutes in September 1988, the subsequent change in international postage rates in April 1988 departed from pooling inbound and outbound costs. It should be understood that since April 1988, outbound international postage rates have been designed solely on outbound costs. There has been no exception to this approach over the past eleven years.

International rates are predicated on specific cost drivers identified with providing outbound international mail service. The costs that are taken into account for each category of mail include domestic handling and domestic transportation, international transportation, and the cost of delivery in each country of destination. Domestic handling and domestic transportation are factors pertinent, for example, in the development of ISAL and IPA gateway rates. International transportation is a cost driver which, in conjunction with foreign delivery costs, contributes to the construction of rate groups for ISAL, IPA, EMS, printed matter, and air parcels. Transportation costs conform to Department of Transportation (DOT) rates for U.S. flag carriers. ISAL transportation costs, however, are contract rates and are generally lower than DOT rates. Transportation and delivery charges are also primary factors in considering the development of country specific rates.

There are three basic types of delivery charges, each of which can contribute to the design of a particular rate structure, and influence the construction of rate groups. *Terminal* dues apply to the distribution and delivery of CC and AO categories of international mail. *Imbalance* charges apply to the distribution and delivery of EMS items; while *inward land rates* apply to parcel post items.

Terminal dues are promulgated by the Universal Postal Union (UPU). Currently there are three structures that UPU members can invoke: (i) a flat rate set at 3.427 SDR/kg, (ii) a revision mechanism rate set at 0.14 SDR/item plus 1.0 SDR/kg, and (iii) a bulk mail option whose rate may not be higher than those calculated on the basis of 67% of the charge for a 20 gram domestic letter rate or exceed 0.204 SDR/item plus 1.46 SDR/kg. A separate, lower rate of 0.653 SDR/kg applies to M-bags. The UPU does permit administrations to enter into bilateral or multilateral payment agreements to settle their terminal dues accounts. The UPU establishes terminal dues rates at Congress, which is held once every five years. However, the Postal Operations Council of the UPU can amend terminal dues rates between Congresses. Such amendments have generally applied to revisions in the rates for the bulk mail option.

Imbalance charges for EMS items are set by each individual postal administration. Likewise *inward land rates* for parcel post items are determined by each UPU member and can be revised annually.

Important parameters to measure with respect to applying all possible terminal dues options are the total weight and the number of items per kilogram (IPK) exchanged with major mail trading partners. Estimates of IPKs are statistically determined.

Changes in the structure and level of terminal dues, imbalance charges, and inward land rates contribute to the definition of rate groups, rate structure, and mail acceptance procedures. Delivery structures that have an explicit item component and weight component have, for example, driven the rate design for IPA and ISAL from weight-based (rate/pound) to a rate per item plus a rate per pound.

Market factors are also relevant considerations in setting international rates. Both markups and mail preparation schemes are taken into account. Development of the Air LC rate provides a good illustration of how these two factors were used to alter its link with domestic First-Class Mail rates. Prior to 1988, the first half-ounce Air LC rate was set at twice the domestic first ounce rate. This rule of thumb, together with the charge for the additional weight increments, had the effect of over-pricing international air letters. This practice was abandoned in April 1988. Had it remained in effect, the first half-ounce Air LC rate, effective May 30, 1999, would be changing to 86 cents. The Postal Service believes that this change in methodology contributed to the reversal of the downward trend in international mail volume and revenue through fiscal year 1988, and was responsible for the growth in international volume and revenue for the period 1989 through 1996.

A description of each mail offering follows.

Air LC: Consists of personal correspondence, statements of accounts, and other business oriented transactions posted at single piece rates. Mailers are typically Individuals, households, and small business enterprises. Air letters receive First-Class Mail service in the United States, are dispatched by the most expeditious transportation available, and receive airmail or priority treatment in the country of destination. The rate structure is weight-based and is currently unzoned. Air LC is offered as a universal service. Consistent with moderating the institutional cost burden on this category of mail, the May 1999 International rate change does not increase Air LC from those implemented on July 9, 1995. Separate rates are developed for Canada, Mexico, and rest of the world.

International Priority Airmail (IPA): IPA is a bulk air letter product. It provides business mailers with a service that is as fast or faster than regular airmail. Mailers must meet a minimum ten-pound volume requirement. The current rate design provides for both a presort and non-presort option. The presort option requires separation by country of destination. The rate levels for 1998, however, are not the result of applying cost avoidance factors to the single piece Air LC rates.

Bulk Letter Service to Canada: This service was introduced for business mailers mailing quantities of bulk letters to Canada. A minimum of 500 pieces weighing three ounces or less is required to qualify for this service. Mailers are also required to tray their mail and apply a Canadian post code to each mail piece. The rates for this service represent a fixed reduction from the single piece rate. The reduction was determined on the basis of cost coverage and not on cost avoidance.

Aerogramme and Post Cards: Aerogrammes are designed for personal correspondence. An aerogramme consists of a single page that folds into a self-sealing envelope. Aerogrammes are very light weight and have little rigidity. Post cards are a non-sealed medium for personal and business communications similar to domestic post cards, with the exception that different size standards apply to international cards. Both services are offered with a flat per item rate. The

aerogramme rate is universal, while a separate card rate applies to Canada, Mexico, and the rest of the world.

(AO) Printed Matter and Small Packets: Printed matter has two levels of service. Surface printed matter is a non-priority service. It includes regular printed matter, books and sheet music, and publishers' periodicals. The long-term trend for surface printed matter has been down. Separate surface printed matter rates apply to Canada, Mexico, and the rest of the world. Rate increases to Mexico and the rest of the world are being implemented in phases to mitigate hardship on the publishing industry. Air printed matter is a priority service whose overall long-term trend has shown steady growth in revenue, pieces and weights. As a priority printed matter service, its cost coverage has been sufficiently high so as not to be impacted by the terminal dues changes which have impacted surface printed matter. Air printed matter is priced according to geographic regions taking into account transportation costs and terminal dues differences.

Publishers' Periodicals: Publishers' Periodicals is one of the three subclassifications of surface printed matter. The service is offered only to public and registered newsagents for mailings that would qualify as periodicals under the domestic classification. Similar to other surface offerings, Publishers' Periodicals have experienced a decline in revenue, pieces, and weight since postal reorganization. The rate design recognizes separate rates to Canada, Mexico, and the rest of the world according to terminal dues regime and transportation expense. Changes in UPU terminal dues have resulted in a phased implementation of Publishers' Periodical rates to Mexico and the rest of the world. The UPU convention allows Publishers' Periodical rates to be reduced up to 50% from regular printed matter rates.

International Surface Air Lift (ISAL): ISAL is a bulk mailing service for the delivery of publications, advertising mail, catalogs, directories, other printed matter, and small packets. Mailers must meet a 50-pound minimum mailing requirement. ISAL requires mailer presort by country. Like IPA, ISAL rate design recognizes geographic regions based upon terminal dues and transportation characteristics. The geographic regions are the same for both services. ISAL receives air treatment within the United States, and air transportation to its overseas destination. Surface transportation is provided at destination. ISAL rate design provides for threshold volume discounts for large mailers. The threshold incentives are similar to IPA. When ISAL rates were revised in February 1998, ISAL sustained a rate increase because of a terminal dues change affecting printed matter categories.

ValuePost/Canada: ValuePost Canada is a bulk mailing service for the delivery of regular printed matter, books and sheet music, publishers' periodicals, and small packets. It was introduced as an ISAL equivalent service taking particular account of the terminal dues applicable to mail exchanged with Canada Post Corporation. The rate design recognizes shape, namely, letters and flats. Within shape, a per item rate applies to letters weighing up to one ounce, and a per item rate applies to flats weighing up to five ounces. An item plus pound rate applies to letters and flats exceeding the one ounce and five ounce thresholds, respectively.

M-Bag Service: M-Bag service allows a mailer to prepare a direct sack of printed matter weighing between 11 pounds and 66 pounds to a single address. A reduced terminal dues rate of 0.653 SDR/kg applies and recognizes reduced delivery cost because the M-bag does not require sortation to multiple addresses. The rate design is a simple weight-based charge.

Global Priority Mail (GPM): Global Priority Mail is an expedited airmail letter service providing fast, reliable delivery of all items mailable as letters and merchandise up to four pounds. The service is targeted to specific countries based on market considerations. Rate design provides both a flat rate for small and large envelopes, and single piece weight-based rates. LC terminal dues rates apply to the delivery of GPM, however, the level of service is better since its Express endorsement accords it special delivery treatment in the country of destination.

Global Package Link (GPL): Global Package Link is a bulk mailing service that provides fast, economical international delivery of packages containing merchandise. A customs pre-advisory option offers convenience and affordability to parcel mailers. GPL is the only bulk parcel service offered internationally by the Postal Service. The rate design is country specific due to the different delivery charges assessed by the countries participating as GPL partners. The rate levels were initially set with a target cost coverage of 130%, however, the world economic slowdown has adversely impacted the volume growth, thus causing fixed costs to be distributed over fewer pieces. GPL rates were increased 9% last December with the expectation of achieving breakeven in the face of declining volumes.

Express Mail Service (EMS): International EMS is the fastest delivery service offered for the delivery of international items by the Postal Service. EMS items may consist of documents and merchandise. The service is offered to approximately 180 countries. EMS expedites urgent letters, small packages, and documents to the country of destination where they are handled and delivered on a priority basis by either a local postal administration or private courier. Rate design considerations have recognized both geographic regions and country specific markets.

Parcel Post: International surface parcel post is comparable to d-lit zone-rated parcel post in that it is a non-priority service. It is appropriate for mailing merchandise, printed matter or other items not required to be mailed at letter rates. Written communications having the character of personal correspondence may not be enclosed in parcel post packages. The maximum weight limit for parcel post varies from 11 to 70 pounds, depending on country of destination. International air parcel post is a priority service that can be compared to domestic priority mail service. Weight limitations also apply as specified by the country of destination. Both services are designed as single piece offerings. Anomalies between surface and air parcel rates, however, are a function of the non-transportation costs estimated for each of the two parcel categories.